

REPORT ON THE
PROVISION OF MAINTENANCE
FOR HES EQUIPMENT IN
EUROPE

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1. Introduction

(i) Objectives

Hitachi Electronic Services (HES) commissioned the study to discover European Third Party Maintenance Companies (TPM's) willing to maintain HES's specified customer base in Europe.

INPUT's brief was to identify the above TPM companies and the terms on which they would do business.

INPUT would then recommend the best TPM company(ies) for HES to approach for detailed negotiations.

(ii) Methodology

Based on HES's list of questions INPUT designed a Questionnaire which was sent with a covering letter to 18 companies that INPUT felt would be interested in quoting for the business.

Companies were selected based on INPUT's knowledge of the TPM market in Europe. The companies either maintained IBM equipment and/or were located in countries that covered part or all of the geographical spread of HES's equipment.

All companies selected were then followed up by telephone or visits to establish their interest and suitability to work for HES.



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- There is no single TPM market in Europe. The current scene is rather confused, with the market in each individual country being at a different stage of maturity. The table below shows the penetration of TPM in each of the major countries in Europe.

-	UK	7.7%
-	France	2.7%
-	Germany	1.1%
-	Italy	0.9%
-	Sweden	4.0%
-	Holland	3.5%

- The implication of this analysis is that the most advanced TPM companies are likely to come from the UK, where the market is more established and TPM companies have reached user-acceptable levels of credibility. In fact, the top three TPM's in Europe, in terms of turnover, are headquartered in the UK:- Bell Technical Services, Computer Field Maintenance and DPCE. These three together account for almost 15% of the total UK market.
- The fragmented nature of the market, both in geographic terms and product terms makes it difficult to visualise a single TPM company being able to provide the total service which HES are seeking. The market leader, Bell Technical Services, for example, does not service the range of equipment that HES have installed, and cannot therefore be regarded as a potential agent.
- INPUT has, therefore, restricted its search to those companies with a significant European presence, and the ability to meet HES requirements. No individual TPM company can meet all the criteria specified.

2. Summary of Results

- (i) 18 companies were approached - 2 Hardware vendors that have a TPM capability
 - 16 TPM companies
- (ii) 7 companies quoted for part or all of the maintenance work made up of both the hardware vendors and 5 of the TPM companies
 - 11 TPM companies were not interested in carrying out the maintenance required
- (iii) Only Olivetti s.p.a. is currently capable of providing maintenance to all the specified sites. National Advanced Systems could maintain all except the Spanish sites.

Of the pure TPM companies SMS International and Sun Computer Maintenance Ltd are best positioned to maintain a high proportion of HES sites - 54 and 72 respectively.

- (iv) INPUT would recommend, therefore, that HES open negotiations with the 4 companies named above. We do recognise the existing trade links HES have with Olivetti and NAS, which may result in a conflict of interest. It might be therefore more appropriate to begin negotiations with SMS and Sun.

One other alternative would be to split the work between the UK and other European sites. In this case it would be worthwhile for HES to approach DPCE (UK) Ltd for the UK sites, as a respected TPM company for IBM Equipment.

3. Companies Approached

(i) Interested in carrying out the work, or part of it

TPM companies

1.	Computer Field Maintenance Ltd	-	Hitchin, UK
2.	DPCE (UK) Ltd	-	Wokingham, UK
3.	Mainstay Computer Cover Ltd	-	Stockport, UK
4.	SMS International	-	Feltham, UK
5.	Sun Computer Maintenance Ltd	-	Middlesex, UK

Hardware Vendors

1.	National Advanced Systems	-	Isleworth, UK
2.	Olivetti s.p.a.	-	Ivrea, Italy

Analysis of Positive Responses

(a) Contract Period required with HES

Computer Field Maintenance Ltd	-	2 years
DPCE (UK) Ltd	-	2 years or more
Mainstay Computer Cover Ltd	-	1 year but would prefer longer
SMS International	-	1 year but would prefer 3 years
Sun Computer Maintenance Ltd	-	1 year
National Advanced Systems	-	1 year
Olivetti	-	1 year but would prefer longer

(b) Coverage of Cities by Company and response in hours
(= number in column)

	<u>HES</u> <u>sites</u>	<u>CFM</u>	<u>DPCE</u>	<u>MAINSTAY</u>	<u>SMS</u>	<u>SUN</u>	<u>NAS</u>	<u>OLIVETTI</u>	
1.	LONDON	29	2	2	2	2	2	2	
2.	STOCKHOLM	2		8+		4	2	2	
3.	DUSSELDORF	6		8+	2	4	2	2	
4.	FRANKFURT	7		8+	2	4	2	2	
5.	AMSTERDAM	3	2	3		2	2	2	
6.	BRUSSELS	5	2	2	6	4	2	2	
7.	LUXEMBOURG	1		8+	8	-	4	2	
8.	PARIS	4		3	2	2	2	2	
9.	ZURICH	3		8+		2	2	2	
10.	GENEVA	2		8+	8	4	2	2	
11.	LUGANO	4		8+		4	2	2	
12.	MILAN	2		8+		4	2	2	
13.	MADRID	5		8+		4		2	
No. of sites →		73	1	3	13	7	12	12	13
									No. of ← cities covered

(c) Acceptance of Service Calls

- Computer Field Maintenance - 24 hours per day,
7 days a week
- DPCE (UK) Ltd - 24 hours per day,
7 days a week
- Mainstay Computer Cover - 7 am-11 pm Monday to Friday
9 am-5 pm Saturday & Sunday
- SMS International - France, Germany, UK -
24 hours/day excluding
public holidays - other
cities depends on need
- Sun Computer Maintenance Ltd- Standard 24 hours,
7 days a week
Option 1-24 hours,
5 days a week
Option 2-12 hours,
5 days a week
- National Advanced Systems 24 hours, 7 days a week
- Olivetti "normal commercial practice"
e.g. 8 a.m - 4.30 p.m. Italy
but standby arrangements
outside of normal times would be
possible depending on local
situation of country

(d) Supply of Regular Maintenance/Report reports

All 7 companies can do this.

Sun Computer Maintenance Ltd qualified their statement that regular reports would be supplied subject to:

- inventory levels per box
- duration of training course
- specific test equipment required/supplied
- field change frequency and anticipated duration as per contracted terms

(e) Business Terms/costs for an agreement

Although detailed questions were asked about costs of an agreement as can be seen from the analysis below, companies were not prepared to give detailed costings until a meeting was held with the client company. However their approach to any contract is given below.

Computer Field Maintenance

- want a "labour only" contract at an annual charge to be agreed. This cost would cover the costs of all service calls and all costs associated with travel and out of hours service. Other costs covered by the agreement would be any communications, administration and office costs.

DPCE (UK) Ltd

- would want to negotiate charges direct with the client, their costs would be "based on the planned resources" needed.

Mainstay Computer Cover

370, S-38, S38-4

Rate for UK - £70 / hour - normal business hours
 - £70 / hour - outside normal business hours
 - £100/ hour - public holidays

PSS/FAX

Rate would depend on the country

- travel time - as above/hour - one way only ie. travel to the client
- other costs - overnight stops - maximum £50 per night
 - taxis for parts transport where needed

SMS International Ltd

- want to negotiate a comprehensive "monthly fee" that would include all costs. This fee would be fixed however many visits were required to the sites. If installations were added the "monthly fee" would rise.

As a guide current costs per hour are:

UK £70/hour for IBM Equipment
Monday to Friday 9 a.m. to 5 p.m.
- other hours £85/hour
£40/hour for FAX Equipment
Monday to Friday 9 a.m. to 5 p.m.
- other hours £50/hour

France 560FF/hour Monday to Friday 9 a.m. to 5 p.m.
- other hours 840FF/hour
Sundays and Public Holidays 1120FF/hour

Germany 289-390DM/hour prime shifts say 9 a.m. to 5 p.m.
Monday to Friday
- outside of these hours the uplift per hour would be "the same % as IBM charges"

Sun Computer Maintenance Ltd

		<u>rate/hour</u>			
	<u>370</u>	<u>S-38-4</u>	<u>S-38</u>	<u>PSS</u>	<u>FAX</u>
- during normal business hours	£50.00	£50.00	£50.00	£50.00	£50.00
- outside normal business hours	£65.00	£65.00	£65.00	£65.00	£65.00
- Travel time - £45.00 per hour					
- All other costs would be included in the "standard maintenance agreement".					

National Advanced Systems

All charges would be in a "monthly maintenance charge" which would vary country by country. Charges would be approximately the same as IBM charges for similar equipment.

Olivetti s.p.a.

- would only be interested in providing the service for a "one-off" annual fee in advance. They want more data for their calculation of a charge. They would not breakdown their charge to the client as requested i.e. by hour, travel time, administration and so on.

(ii) Companies not interested in carrying out the maintenance for HES that INPUT approached

<u>TPM Companies</u>	<u>Main location</u>	<u>reason not interested</u>
1. ATM Ltd	Greenford, UK	1, 2
2. Bell Technical Services	Feltham, UK	1, 2
3. Computeraid Services	Franborough, UK	2
4. Datalogic Ltd	Harlow, UK	1, 2
5. DTC Service	Zeist, Holland	2
6. DDT Maintenance	Birmingham, UK	1, 3
7. MBS Engineering Services Ltd	Slough, UK	1
8. Mills Associates Ltd	Monmouth, UK	1
9. Quest International Computer Services	Hampshire, UK	1
10. Telub AB	Vaxje, Sweden	2
11. Vollwood Computer Service Gmbh	Eschborn, West Germany	2

Reasons for no interest in quoting

- 1. Cannot provide support outside of UK in Europe
- 2. Do not maintain this type of IBM compatible equipment
- 3. Could not carry out contract with client without affecting current level of service to own customers

4. Profiles of Companies who quoted

COMPUTER FIELD MAINTENANCE (CFM) LTD

Address: Excell House
 Trust Industrial Estate
 Hitchin
 Herts
 UK

Ownership Owned by International Aeradio, which is in turn owned by Standard Telephones and Cables (STC), a public company. STC once owned part of ITT. STC also own ICL.

Financial Turnover: 1984 £10.0 million
Data: 1985 £12.0 million + 20% growth
 1986 £14.0 million + 17% growth

Pre-tax profits of £900K in 1984 are expected to rise to £1.2 million in 1985 and £1.4 million in 1986, representing 10% return on turnover.

Assests are estimated to be £3 million, giving a healthy 40% return on investment in 1985.

90% of revenue is derived from maintenance, the remainder being sales of supplies.

Employees: CFM has a total staff of 400, with 300 being service engineers, working from 22 centre in the UK. Turnover per engineer in 1985 will be £40,000 and per employee £30,000. Forecast profit figures are £4,000 and £3,000 respectively.

CFM's central workshop activity is growing and they are currently buying a new 5 acre site in Stoke-on-Trent.

Products
Maintained: CFM are mainly involved in medium systems terminals and PC's, but to have a contract to maintain Bank of Scotland Cash Dispensers. The breakdown of their turnover is:

Large Contracts	£2.0 million (BOS, Barclaycard)
Terminals/PC's	£2.0 million (Main growth area)
Medium Systems	£4.7 million (Mainly DEC range)
Ad-Hoc	£0.3 million
Sales of Supplies	£1.0 million
	<u>£10.0 million</u>

They provide all hardware services except refurbishment, but do not add, improve or extend software features, carry out programming or consulting. They do, however, offer free advice on hardware enhancements.

CFM acts both on an agent of a manufacturer but also competes with manufacturers for service revenue.

Almost all business is on a contract basis (97%).

DPCE (UK) LTD

Address: 6 Broad Street
Wokingham
Berks RG11 1AB
UK

Ownership: DPCE (UK) is a wholly-owned subsidiary of DPCE Holdings PLC, a company which also own DPCE BV and Storage Technology in Holland, DPC INC in the USA and DPCE Products.

They are fully listed on the Stock Exchange and shareholders are mainly large pension organisations.

<u>Financial</u>	Turnover:	1984	£8.0 million
<u>Data:</u>		1985	£13.5 million
		1986	£18.9 million

The 1984 gross profit was 22.5% of turnover, although declined to 19% in 1985. If this is maintained through to 1986, gross profits will rise to £3.5 million.

Employees: DPCE have 230 engineers, some working mainly from customer sites. The turnover per engineer in 1985 will be £48,700 and the resultant gross profit almost £11,000.

Products Maintained: DPCE cover a large range of equipment from IBM mainframes, DEC VAX's down to PC's (IBM, Sirius and Acorn) and network services. The PC maintenance business is retriected to large customers only. DPCE maintain hardware from over 150 manufacturers (see attachment).

Customers Compared to many other independent maintenance companies, DPCE have a relatively small, 400, but high quality customer base, including KLM, British Airways, Sainsburys, Racal, Hunting, National Girobank, British Telecom, Save and Prosper Group.

MAINSTAY COMPUTER COVER LTD

Address: Bamford Grange
Adswood Road
Stockport
Cheshire
UK

Ownership: A private company 60% owned by the employees and 40% owned by bankers and a private investor.

<u>Financial</u> <u>Turnover:</u>	Turnover:	1984	£0.9 million	
		1985	£1.5 million	+ 66.7% growth
		1986	£3.0 million	+ 100% growth

Total company turnover is rather higher than expected because of the additional insurance aspect of the business. Engineering services account directly for 40% of the turnover.

Pre-tax profits in 1984, at £100,000 were 11.7% of turnover rising to 16.7% or £250,000 in 1985.

Employees: Still a very small company, employing 41 people in all, 16 of whom are engineers. In 1985, revenue per engineer and per employee will be £93,750 and £36,600 respectively. The corresponding profit figures are £15,600 and £6,100 respectively.

Equipment Maintained: Almost entirely IBM "General Systems Division" hardware e.g. IBM 4300 series, with a few PC's and some IBM compatible equipment also.

They carry out most normal hardware services but have little software capability, and little or no sales of supplies or accessories.

Customer: Overall, Mainstay have some 360 customers - 300 in the UK, and 60 in Europe.

NATIONAL ADVANCED SYSTEMS(NAS)

Address: John Busch House
277 London Road
Isleworth TU7 5AX
UK

Ownership: NAS is a subsidiary of the National Semiconductor Corp.

Financial Data: NAS Is the largest supplier of IBM program-compatible computer systems peripheral devices and related products. It has products installed in 27 countries worldwide.

Employees: 200 engineers in 11 different European countries.

Equipment Maintained: IBM Compatible systems.

Customers: 2000 worldwide.

SMS International

Address: Unitair Centre
P.O. Box 13
Great South West Road
Feltham
Middlesex TW14 8NT
UK

Ownership: Owned by Total Technical Services of the USA

Financial Turnover 1984 \$7.0 million (out of total group
turnover of \$25 million)
Pre-tax profits of \$600,000 in 1984
(\$1 million in total for Group).

Employees: SMS International have established companies in the UK,
France, West Germany and Italy.

Products All IBM equipment - but specialise in the large mainframes,
43XX, S38, S34.

Customer
Profile: Ex-IBM customers, no particular industry segment. Also the
customers of manufacturers who SMS have contracts with to
maintain the manufacturer's equipment.

SUN COMPUTER MAINTENANCE LTD

Address: Unit 4
Crown Business Centre
Horton Road
West Drayton
Middlesex UB7 8HZ
UK

Service Centres in: UK (6), Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Spain, Sweden and Switzerland.

Ownership: owned by International Broking and Leasing plc, a group with some £150 million turnover in 1984.

Financial: Turnover: 1984 £1.2 million
1985 estimated £3.6 million

Employees: Over 100 engineers in Europe

Equipment Maintained: IBM, S34, 36, 38, 4300, 30XXs.

Customers: 50+ - many of them large IBM sites with multiple types of equipment.

OLIVETTI s.p.a.

Address: 10015 Ivrea (To)
 Via G. Jervis 77
 Italy

Olivetti is one of the largest European computer manufacturers with

Olivetti Customer engineering service operates throughout Europe.

5500 engineers

290 service centres

Equipment any IBM compatible products
Maintained:

5. Maintenance Personnel working in Europe

(a) Japanese Personnel working in the UK

To work in the UK the Japanese engineer would need to have qualified for a UK work permit ("visa"). Once this has been obtained there is no problem at all in the person visiting other Western European countries to undertake maintenance. The person would be treated as a "visitor" and could for example stay up to 2 weeks or so in a country with no problems, or even longer.

(b) European Personnel - any European service person is free to visit other Western European countries to undertake service work. The person is treated as a visitor.

Note: A Common Market National is free by law to work in any country of the European Economic Community (EEC).

6. Spare Parts for Maintenance

Spare parts for maintenance can be placed in a "bonded" warehouses in the UK, or elsewhere in Europe providing agreement is obtained from the Customs and Excise. This would avoid the payment of customs duties while the parts are in storage.

However Customs Import Duty would be payable as soon as the part went to an EEC country at the rate of 4.5%.

EEC Cities in the proposal are:

- London
- Dusseldorf
- Frankfurt
- Amsterdam
- Brussels
- Luxembourg
- Paris
- Milan
- Madrid (from 1/1/86)

Non-EEC Cities are:

- | | | |
|-------------|---|---------------------------------|
| ◦ Stockholm | - | Swedish Import Duty would apply |
| ◦ Zurich | - | Swiss Import Duty would apply |
| ◦ Geneva | - | Swiss Import Duty would apply |
| ◦ Lugano | - | Swiss Import Duty would apply |

Value Added Tax - this would have to charged to clients at the appropriate rate for the country when the parts were sold to customers.

7. INPUT Recommendations

From the results given in the study it can be seen that:

TPM Companies

(a) No TPM company can carry out the maintenance of the HES sites in all countries.

(b) CFM can maintain the 29 UK sites only.

(c) DPCE can maintain the

29	London
3	Amsterdam
5	Brussels
<u>34</u>	sites

(d) Mainstay claim to be able to maintain all the sites but would sub-contract much of the work in Europe.

(e) SMS International can maintain the

29	London
6	Dusseldorf
7	Frankfurt
5	Brussels
1	Luxembourg
4	Paris
2	Geneva
<u>54</u>	sites

(f) Sun Computer Maintenance Ltd can maintain all the sites with the exception of Luxembourg (1 site) ie. Sun can maintain 72 sites.

Hardware Vendors who will carry out TPM

(g) National Advanced Systems can maintain 68 of the 73 sites (excludes the 5 in Madrid).

(h) Olivetti can maintain all the 'sites'.

INPUT therefore recommends that:

(1) HES negotiates with Olivetti if an all embracing contract is required.

(2) However NAS have excellent IBM compatible expertise and would be worth approaching to get a comparative quotation.

(3) In addition but also if for their own reasons HES do not want to deal with a manufacturer then the best TPM companies to approach would be:

- SMS International Ltd
- Sun Computer Maintenance Ltd
all sites excluding Luxembourg - but if a deal was made INPUT feels Sun would be able to service Luxembourg also.
- DPCE (UK) LTD
for the UK only HES sites, since DPCE specialises in IBM equipment maintenance.

REQUEST FOR TENDER FOR

MAINTENANCE SERVICES

IN EUROPE

Submitted by:

K. Hocking
INPUT LTD.
41 Dover Street
LONDON W1X 3RB

Telephone: 01 493 9335

Thank you for your help in completing this document.

Completed by:

Name: _____

Title: _____ Telephone: _____

Company: _____

Address: _____

Proposed terms of business from client - please add your comments as indicated.

Following conditions are proposed:

The period of the contract between the client and the third party maintenance company will be one year. The agreement will be renewable.

☐ acceptable - please tick applicable

☐ not acceptable

Comments: _____

The following list give the cities in which our client would like a maintenance service so you can indicate those locations in which you can provide service cover.

It may be that no one TPM company will be able, or desire, to provide service in all cities but it is not essential to do this in order to reach an agreement.

The client would like a '2' hours response time if possible and the following list also enables you to indicate the response time you could provide between 2 and 8 hours after the call.

n provide service in the cities as below:

e tick as applicable.

If "Yes" I could respond in - please
"circle" number of hours

on	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
holm	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
eldorf	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
kfurt	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
erdam	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
sels	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
mbourg	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
h	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
va	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
no	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8
id	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	2	3	4	5	6	7	8

What hours per day and which days of the week would you be prepared to
ot service calls for the cities you can service?

If not covered in (3) would you be prepared to accept calls 7 days of the week
any time ?

YES ☐ NO ☐ please tick applicable

ment:

Please note that the client will provide:

- maintenance parts (for the moment please do not consider the inventory method or parts cost)
- Free of charge maintenance training in English will be given to chief instructors of the third party maintenance company at TPM site. Maintenance manuals are also supplied in English.
- Additional training if required will be charged for. Training outside of Europe is negotiable.
- Maintenance information will be supplied free of charge.
- Field changes will be carried out at manufacturer's expense.
- Regular intervals for maintenance will be advised by the manufacturer.

I can supply regular maintenance/repair reports

YES ☐ NO ☐ please tick applicable

ment:

business terms in any agreement with our client

What maintenance rate would you charge while on site for service?

	<u>rate/hr.</u>				
	<u>370</u>	<u>S38-4</u>	<u>System 38</u>	<u>PSS</u>	<u>FAX</u>
° during normal business hours	—	—	—	—	—
° outside normal business hours	—	—	—	—	—

please specify these:

What is the rate for travel time ? — — — — —

Are there other costs that you would charge ? If so what are they ?
(communications costs, administration costs, office rental, overhead ?)

What are your call acceptance hours for maintenance ?

Are there any other terms you would like to specify or any comments ?

What strengths do you consider your company has that qualifies it to provide maintenance service requested ?

Thank you.

Please return this completed questionnaire to:-

Mr. Hocking
Managing Director
MUT LTD.
Dover Street
WIDON W1X 3RB
Telephone (01) 493 9335

SYSTEM	LONDON	STOCKHOLM	DUSSEL.	FRANKFURT	AMSTERDAM	BRUSSELS	LUX.	PARIS	ZURICH	GENEVA	LUCANO	MILAN	MADRID	
IBM 4361-4	2							1					1	4
IBM 370/125			1			1								2
IBM 370/115	1													1
IBM S/38-4	1		1											2
IBM 538 SMALLER	5	1	1	1	1	2		1	1	1	2	1	3	20
PACKET SWITCHING SYSTEMS	9		1	1										11
FAX	11	1	2	5	2	2	1	2	2	1	2	1	1	33
TOTAL	29	2	6	7	3	5	1	4	3	2	4	2	5	73



THE INDEPENDENT
COMPUTER MAINTENANCE
COMPANY

CFM

COMPUTER FIELD MAINTENANCE – AN INTRODUCTION

Computer Field Maintenance (CFM) pioneered third party maintenance in this country. Founded in 1969, we are profitable, financially secure and the largest independent maintenance company in the United Kingdom. Our total revenue is derived from providing a first class maintenance service to computer users.

We provide service, tailored to customer requirements, to over two thousand computer users in industry, banking, commercial and government departments and maintain computer and terminal equipment from the majority of manufacturers. We have over two hundred and thirty Customer Engineers operating from twenty-two Service Locations enabling us to provide a comprehensive service throughout the mainland of the United Kingdom.

In addition we have resident engineers located at a number of large computer installations. With our considerable experience in maintenance management and ability to service multi-vendor equipment, our customers receive, from a single source, a responsive and personalised maintenance service free of demarcation disputes.

Our impressive list of customers includes a large number of household names who recognised the benefits of third party maintenance and now use our services. Why not ask for a customer reference list, confirm our claims, and join them in benefitting from substantial savings and a first class service?

Computer Field Maintenance is the company you can trust to maintain your computer systems, terminals and networks.

○ Sales and Service Offices:

HEAD OFFICE HITCHIN (0462) 51511
BRISTOL (0272) 293556
BIRMINGHAM (021) 5585334
FELTHAM (01) 890 1455
HUNTINGDON (0480) 50546

LEEDS (0532) 631631
LONDON (01) 251 2391
MANCHESTER (061) 832 6212
LIVINGSTON (0506) 419111

● Service Centres:

ABERDEEN
ABINGDON
CARDIFF
CROYDON

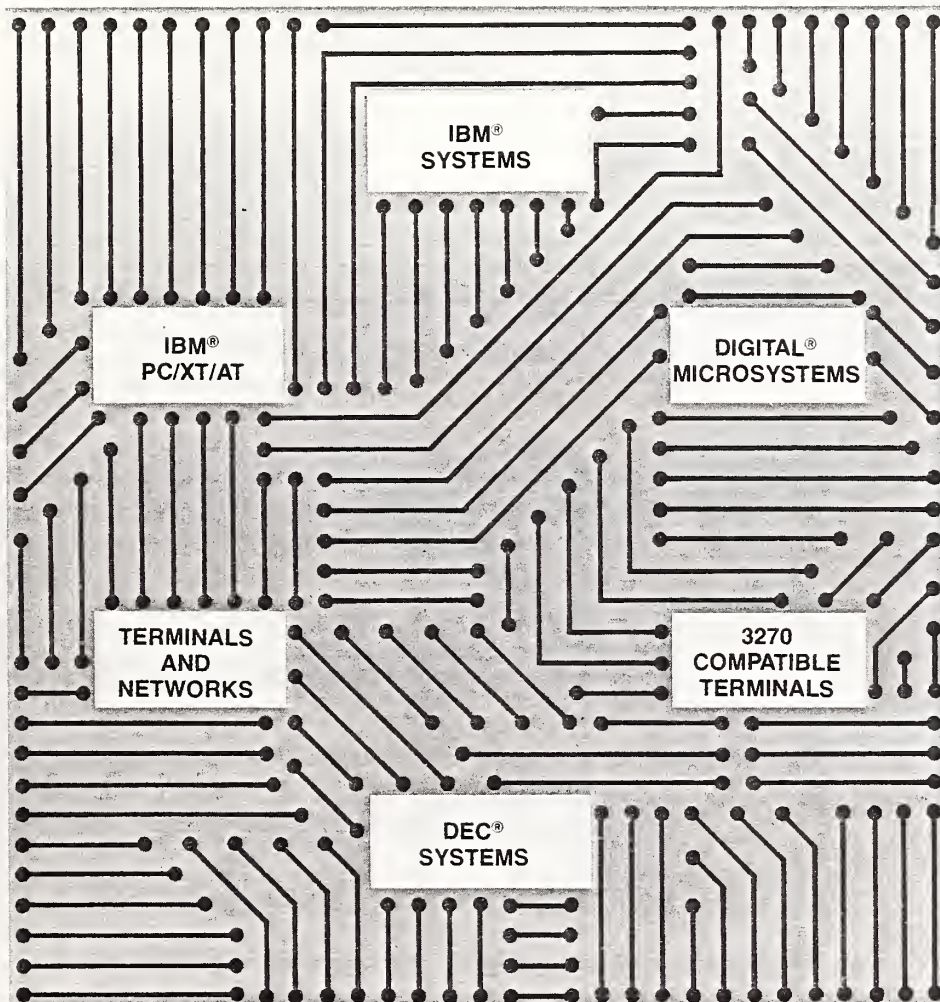
DUNDEE
EXETER
FAREHAM
HERTFORD

INVERNESS
LEICESTER
NEWCASTLE
NOTTINGHAM

SWANSEA
TEESSIDE

CFM

IBM® SYSTEMS



Computer Field Maintenance Ltd offers nationwide service for computer systems, networks and terminals. Maintenance service designed to customers requirements.

For further information – see overleaf.

– Dedicated to Customer Service –

COMPUTER FIELD MAINTENANCE LIMITED

- Customer service provided by the United Kingdom's largest independent maintenance company.
- Sales and area offices: Bristol, Birmingham, Feltham, Huntingdon, Leeds, London, Manchester, Livingston.
- Over 2,000 satisfied customers.
- Over 230 customer engineers.
- Service response to customer requirements.
- Resident engineers if requested.
- Over £4 million spares inventory.
- Workshop repairs, warehousing, training.
- Computer stationery and supplies.

Computer Field Maintenance Ltd offers nationwide service for computer systems, networks and terminals. Maintenance service designed to customers requirements.

For further information – see overleaf.

– Dedicated to Customer Service –

WHY INDEPENDENT MAINTENANCE MORE SERVICE FOR LESS

Computer manufacturers depend on their product sales for profits and survival. Maintenance is a customer service and a source of extra revenue which is important and perhaps lucrative, but not an essential part of their business.

Independent maintenance companies sell only a service. To survive, they must persuade users to change from an established and often satisfactory policy of leaving repairs to the manufacturer of the equipment.

This is a critical decision, because for many companies break-downs in computer hardware, which are not repaired quickly or which recur too frequently, can disrupt business and cause losses which far exceed the actual cost of maintenance. While CFM can reduce costs for many companies by more than 25% and save some large users half-a-million pounds or more a year, it knows that to win and keep contracts it must combine cost-savings with other more important benefits.

So, CFM aims to give more service for less money, accepting more responsibility for hardware performance and covering a multiplicity of different equipments in situations where a manufacturer may only maintain its own. User management has fewer problems to solve and wastes less manhours.

Computer Field Maintenance (CFM) pioneered third party maintenance in this country. Founded in 1969, we have provided the independent maintenance service required by end users, distributors and manufacturers.

Our ability to meet diverse customer requirements, provide dedicated comprehensive service and in many cases substantially reduce costs is highlighted by an impressive list of customers. We are profitable, financially secure and the largest independent maintenance company in the United Kingdom.

Computer Field Maintenance is the company you can trust to maintain your computer systems, terminals and networks.

CFM SERVICE - A COMMITMENT TO EXCELLENCE

RAPID, FLEXIBLE RESPONSE

Manufacturer and supplier contracts often lack the real flexibility needed to meet the complex maintenance demands of today's sophisticated organisations.

CFM recognises that no two organisations are the same. Requirements differ and service contracts need to be tailored to provide the response level appropriate to the user's applications.

With CFM, 2, 4, 8, or 16 hour response times are available to meet these requirements.

CFM will also provide resident engineers, engineers based at customer sites and full mobile or workshop servicing. Local call control systems ensure a fast response, 24 hours a day.

A NATIONWIDE SUPPORT NETWORK

As well as having over 230 Customer Engineers, CFM has area, regional and national support staff. Throughout a network of 22 service centres, local workshops and a central repair facility equipped with automatic test equipment, repairs are carried out efficiently, to high quality standards and down to component level if necessary.

A highly experienced head office hardware and software technical management team defines maintenance and repair philosophies. It sources spares, diagnostics and documentation, and acts as the link with manufacturers and suppliers.

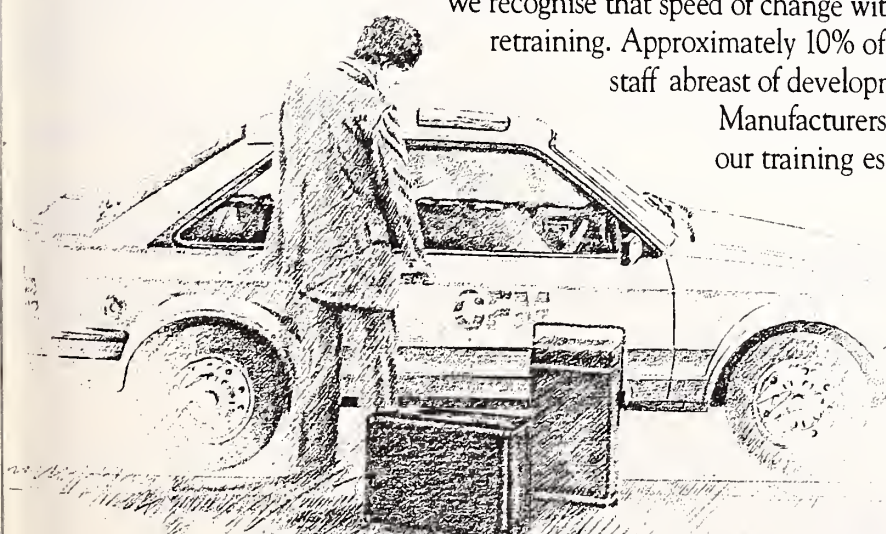
AN IMPRESSIVE INVENTORY

Saving unnecessary downtime means immediate access to relevant spares. CFM currently holds over 48,000 bin items, valued at over £4 million, strategically distributed throughout local service centres around the country. CFM's advanced stock control system further ensures fast back-up from regional or national resources.

A COMMITMENT TO TRAINING

We recognise that speed of change within the computer industry demands constant retraining. Approximately 10% of CFM's annual revenue is dedicated to keeping staff abreast of developments.

Manufacturers courses are utilised when necessary, although our training establishment at Fenton satisfies most of our own (and other companies') in-depth training requirements. Each year every CFM Customer Engineer will gain an average of one month's education both theoretical and 'hands-on'.





MAINTENANCE MANAGEMENT


Large installations, managing the sheer volume of hardware can be a drain on resources. CFM offers a package of maintenance management skills designed to help a data processing department make the best use of its hardware. CFM's standard contracts cover every facet of service including installation/de-installation, the efficient scheduling of preventative maintenance; the incorporation of engineering changes; the maintaining of equipment performance and the preparation and interpretation of reports for customer

FREEDOM OF CHOICE

Many users are committed to a single manufacturer largely because of concern over maintenance demarcation on multi-vendor systems. As CFM's engineers maintain not simply products but systems, the user gains the freedom to buy alternative equipment of greater suitability to his needs.

Our specialists will provide free, unbiased advice to the user considering the purchase of new hardware.

With our close links with the market-place we can save a user both time and money when purchasing equipment, whether it is micro, mini or mainframe.



ENHANCED BOTTOM LINE

Manufacturers can regard maintenance simply as a captive profit centre. Their charges often bear no relation to the service provided. With CFM you can save typically between 20 and 30% on your annual maintenance charges. Payment terms are flexible and service charges are fixed yearly. There are no unsettling sudden increases to upset your budget.

THE BENEFITS OF FINANCIAL SECURITY


Since its inception in 1969, CFM has been combining a high level of management expertise with superlative engineering skills. The result, continuous expansion and profitability.

In an industry renowned for some spectacular failures it is re-assuring to entrust your systems maintenance to a company of proven financial viability.

ORGANISATION

CFM's Directors, Management and Staff are dedicated solely to customer service. The steady growth, financial security and established customer base are clear indications of our objective.



- 
- ALPHA MICRO
 - CDC
 - C-ITOH
 - DEC
 - DIABLO
 - DIGITAL MICROSYSTEMS
 - EPSON
 - IBM
 - IBM PC/XT/AT
 - MEMOREX
 - NEC
 - OKI
 - PLEXUS
 - SHUGART
 - SYSTIME

CFM

SERVING SUCCESSFUL COMPANIES NATIONWIDE - CFM

CFM's market leadership has been achieved by successfully addressing the computer maintenance problems of the United Kingdom's leading organisations.

Companies determined to obtain the best possible service for the best possible price. Companies for whom risk taking is an unnecessary luxury.

A comparison of CFM's client list against the 200 largest United Kingdom companies by market valuation will reveal an interesting fact.

The more successful the organisation, the more likely it is to be using CFM.

Market leaders in Banking, Chemical Processing, Electronics, Leisure, Petrochemicals, Pharmaceuticals, Retailing and Telecommunications sectors are all benefitting from our expert and cost-effective service.

All claims made by CFM are substantiated by the experiences of clients, as the following examples illustrate.

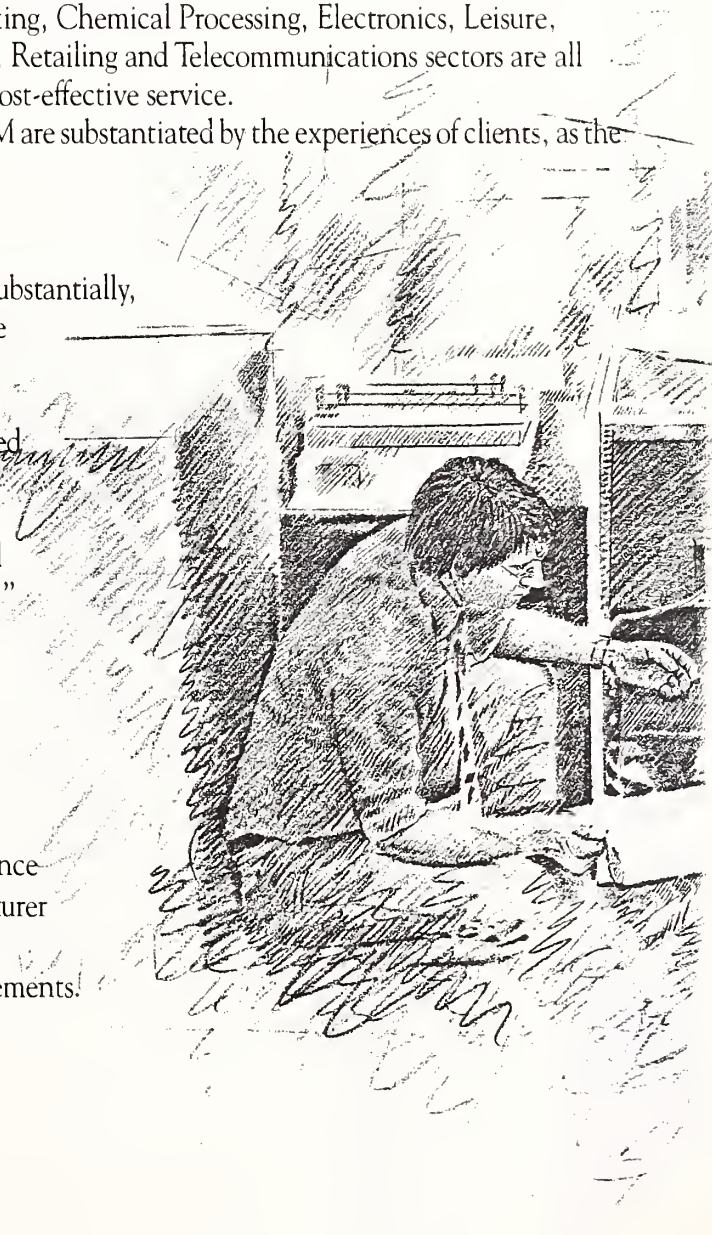
BANKING

"Even though costs are reduced substantially, this was not our priority when the changeover from manufacturer maintenance was contemplated. The efficiency of our sophisticated terminal network is so important to the Bank's success and its service to customers that fast and reliable maintenance is essential."

- A major Bank.

MANUFACTURING

"A number of factors have contributed to our growth. One of the most important was undoubtedly improved maintenance when we changed from manufacturer to CFM. We wanted someone to manage our maintenance requirements."



CFM

The preventative action taken by CFM has improved the performance of hardware, bringing unexpected cost savings." – A leading food manufacturing Group.

ELECTRONICS

"To a large extent, our evolution to third party maintenance for the majority of our equipment was forced because of the mix of manufacturers. Without this move, our expansion in terminal usage would have been difficult to achieve. The administrative work-load associated with computer maintenance has been considerably reduced, with direct cost savings." – A multinational office equipment manufacturer.

LEISURE

"Computer availability for processing bookings and providing customer information is much higher due to CFM's high standard of maintenance.

For our requirements we do not think that we could get a better service."

– A major group of tour operators.

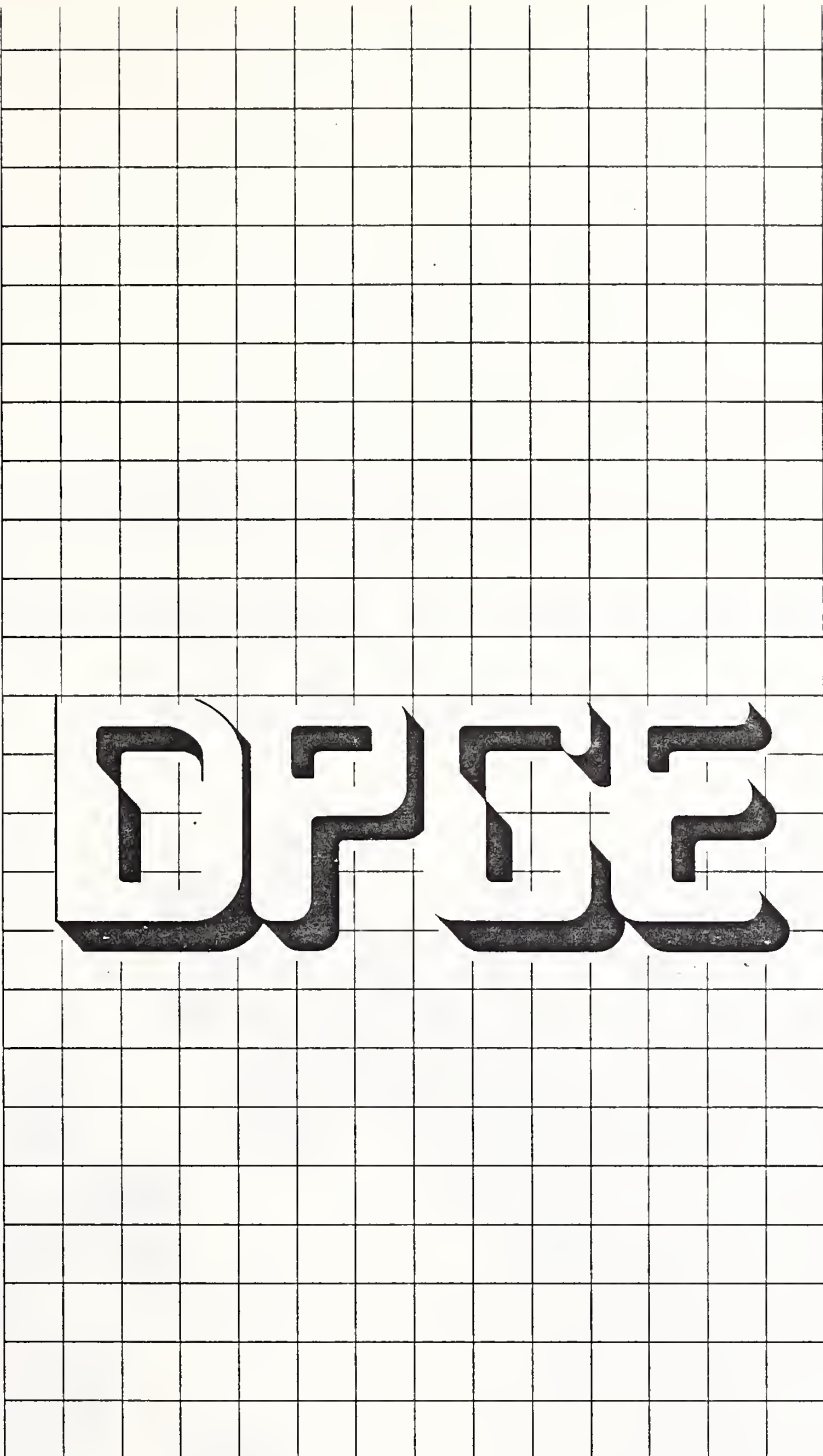
CFM aims to provide a first class maintenance service for less money, accepting more responsibility for hardware performance and covering a multiplicity of different equipments in situations where a manufacturer may only maintain his own.

Why not join our impressive list of customers who have recognised the benefits of third party maintenance.

Contact us today for further information. CFM, the company you can trust to maintain your computer systems, terminals and networks.

- ABERDEEN
- ABINGDON
- BIRMINGHAM
- BRISTOL
- CROYDON
- CARDIFF
- DUNDEE
- EXETER
- FAREHAM
- FELTHAM
- FENTON
- HERTFORD
- HITCHIN
- HUNTINGDON
- INVERNESS
- LEEDS
- LEICESTER
- LIVINGSTON
- LONDON
- MANCHESTER
- NEWCASTLE
- NOTTINGHAM
- SWANSEA
- TEESIDE

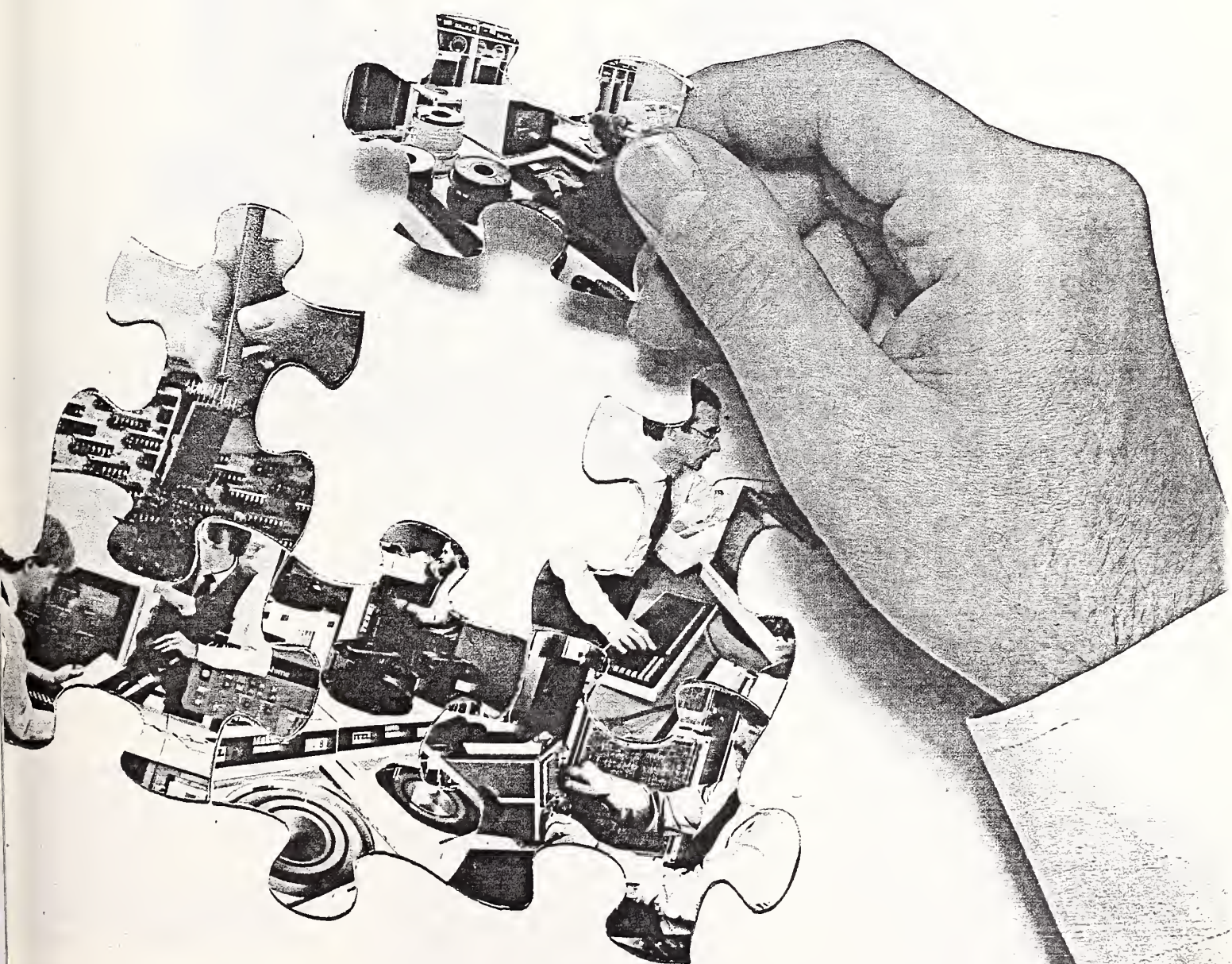




DPSE

**Independent
Computer
Maintenance**

The maintenance strategy for today's computer installations

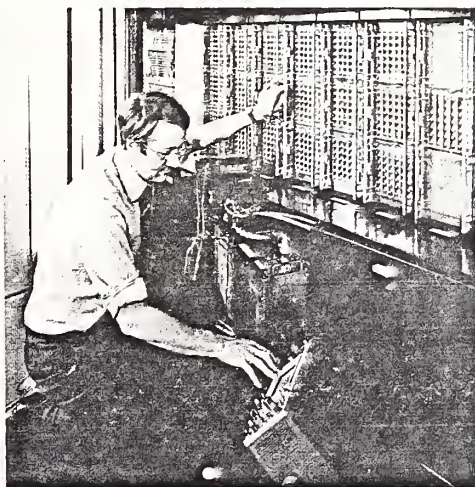
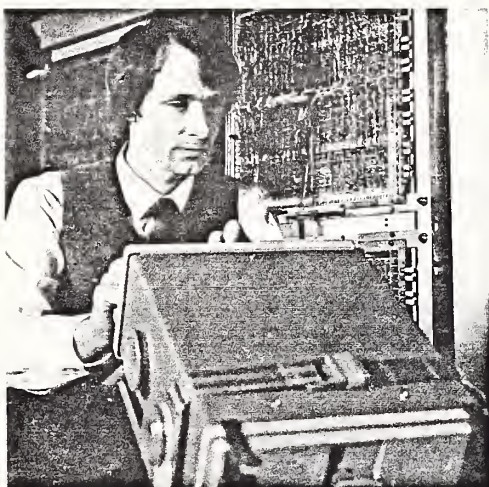


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roach that breaks down the
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rdware.
s needed to complete the
is 'total system' maintenance,
single organisation able to take

care of the complete computer
installation — whatever its size, and
whatever the hardware mix and
complexity; whether the equipment is
on a single site, or linked by data
communications networks across the
country.
DPCE provides totally professional,
reliable maintenance of computer
systems, irrespective of manufacturer.
Dozens of major organisations in

commerce, industry and the public
sector have entrusted their computer
systems to DPCE's care, and
discovered the benefits.
Easier administration of the site,
greater flexibility in equipment
procurement, elimination of fault
contention problems, and improved
system availability. And in most cases
a significant cost saving on
maintenance charges.

Total system maintenance tailored to your precise needs



No two computer installations have exactly the same maintenance needs. That's why DPCE has evolved a highly flexible maintenance strategy able to accommodate the needs of many different kinds of computer sites, from distributed terminal networks, to the very latest generation mainframe computers. DPCE takes overall responsibility for the integrity of the complete system, including network management and control where appropriate. Backing up this independent maintenance capability is a range of complementary services which further assist the user to boost the cost-effectiveness and efficiency of his computer installation.

On-site

DPCE resident engineering team provide permanent on-site cover as needed, or a mixture of on-site cover during prime shift time, and on-call cover at other times. Charges are based on the maintenance engineering resources utilised, not on the number of machines installed.

On-call

All sites require a resident maintenance engineering presence, and DPCE can provide an on-call service which still includes regular preventive maintenance.

Time and materials

DPCE does in certain circumstances offer a time and materials maintenance service, incurring costs for the user only when a service engineer is called. Occasionally, large site operators favour this approach with certain

specific items of equipment which are not crucial to the day-to-day availability of the computer system.

Engineering audits

Drawing on a uniquely broad experience of the performance of hardware from many different manufacturers, DPCE undertakes complete engineering audits for computer users. Assessing the condition of hardware, running comprehensive diagnostics routines, and making recommendations on maintenance procedures.

Site surveys

DPCE's close involvement in the day-to-day running of large, complex computer installations enables the company to undertake site surveys of existing or proposed computer installations, covering floor plans,

cable routes and other important aspects.

Training

DPCE's own engineers receive regular training courses to keep them at the forefront of hardware technology, and up to date on manufacturers' enhancements. This storehouse of knowledge is available to DPCE users, who can benefit from training programmes designed specifically for their needs.

Hardware consultancy

With its total independence from any manufacturer, DPCE can bring an unbiased viewpoint to the planning of hardware procurement strategies, making recommendations solely on the basis of achieving the optimum cost/performance for the user. This can include second user as well as new equipment.

The benefits of DPCE independent maintenance

DPCE independent computer maintenance normally offers direct savings over manufacturer maintenance. Charges are worked out on the basis of resources employed, so that a change in equipment configuration does not necessarily mean additional maintenance expense.

Convenience: DPCE is a single source of maintenance covering all types of hardware, regardless of manufacturer. That means one telephone number, one maintenance team and one invoice.

Responsibility: DPCE accepts full responsibility for fault location and rectification, eliminating the possibility of fault contention between different suppliers.

Flexibility: DPCE maintenance programmes are tailored to give your computer installation exactly the cover you need. Scheduled preventive maintenance is arranged for the most convenient time, and on-site

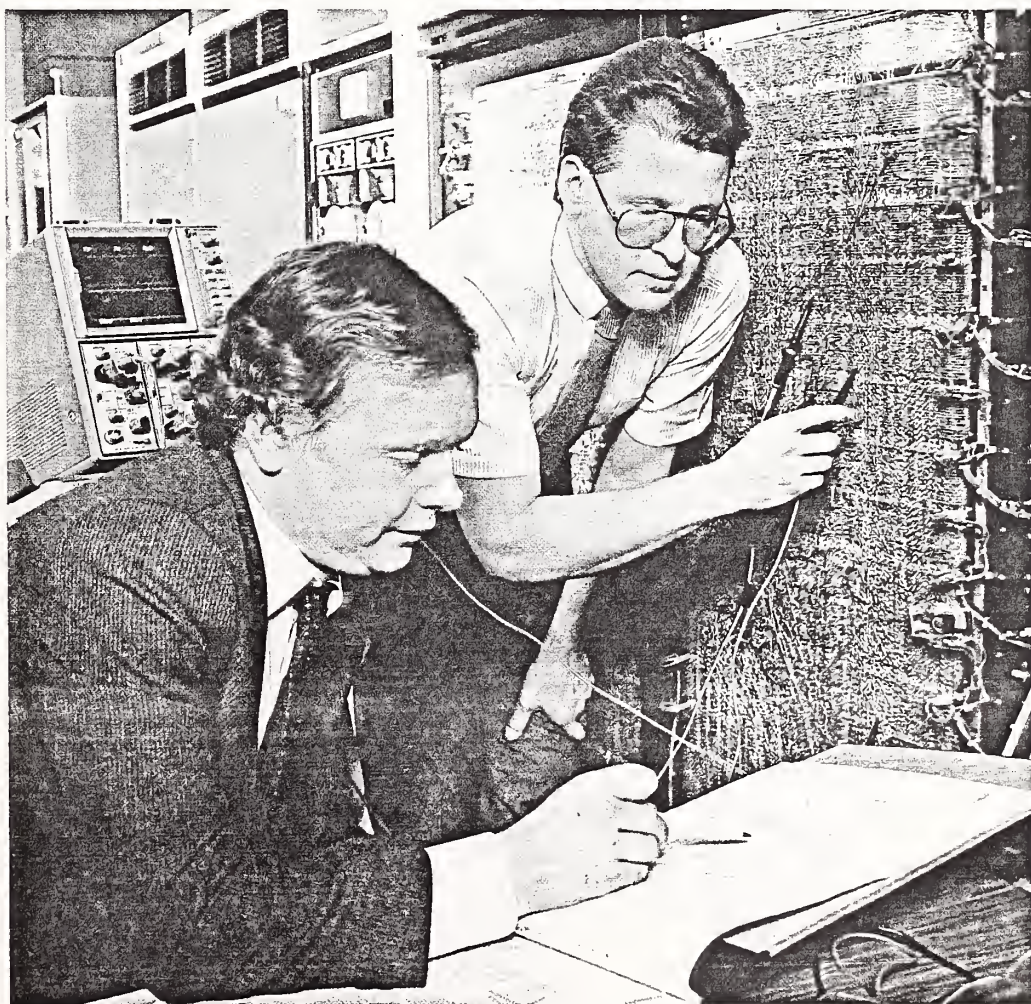
engineers, totally familiar with your site, ensure instant response to emergencies.

Second-source spares: DPCE's international spares procurement resources give users a valuable second source of spares.

Freedom: DPCE independent maintenance frees users to choose hardware from the widest possible range of manufacturers, including second-user and plug-compatible

equipment, secure in the knowledge that there will be no maintenance problems.

Extended life: Since DPCE is completely independent from any manufacturer, the company's sole objective is to achieve the best possible computer cost-effectiveness for the customer. Often, DPCE site engineers can profitably extend the working life of hardware far beyond what the manufacturer would consider worthwhile.



Setting the pace in independent computer maintenance

the leading European
specialising in the
maintenance of
systems.
quoted company, with
ed on the London Stock
and shareholders that
ding institutional investors,
been remarkably successful
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ny's track record in the UK
ne of consistent growth
when DPCE won its first
e contract — to maintain
ter installations for British
Heathrow and the West
Terminal.
DPCE has expanded its
ase to include many well-
astrial and commercial

concerns, as well as government
organisations.
All of them entrusted their computer
installations to DPCE only after
extensive examination of the
company's resources and services,
and discussions with existing
customers.
Original Equipment Manufacturers
(OEMs) and Systems Houses have
been quick to identify the advantages
of DPCE independent maintenance as
an integral part of their own after-sales
support for users.

The Netherlands

In 1979 DPCE successfully introduced
its independent maintenance concepts
into the Netherlands, when KLM Royal
Dutch Airlines appointed the company
to maintain a large IBM installation at
its headquarters near Amsterdam.
This development was the cornerstone
of a continuing expansion in the Dutch

computer market, which is following
very closely the company's track
record in the UK.

Resources

DPCE's engineers are deployed
around the UK and the Netherlands,
according to the needs and
geographical locations of customer
sites.
Many of the engineers were originally
trained by manufacturers. And they
regularly attend training courses, both
in-house with DPCE or with the
equipment manufacturer.
DPCE maintains positive trading links
with most major manufacturers of
computer systems, peripherals and
plug-compatible hardware, and by
virtue of its market dominance has
become a major customer for spares
and other items from the
manufacturers.

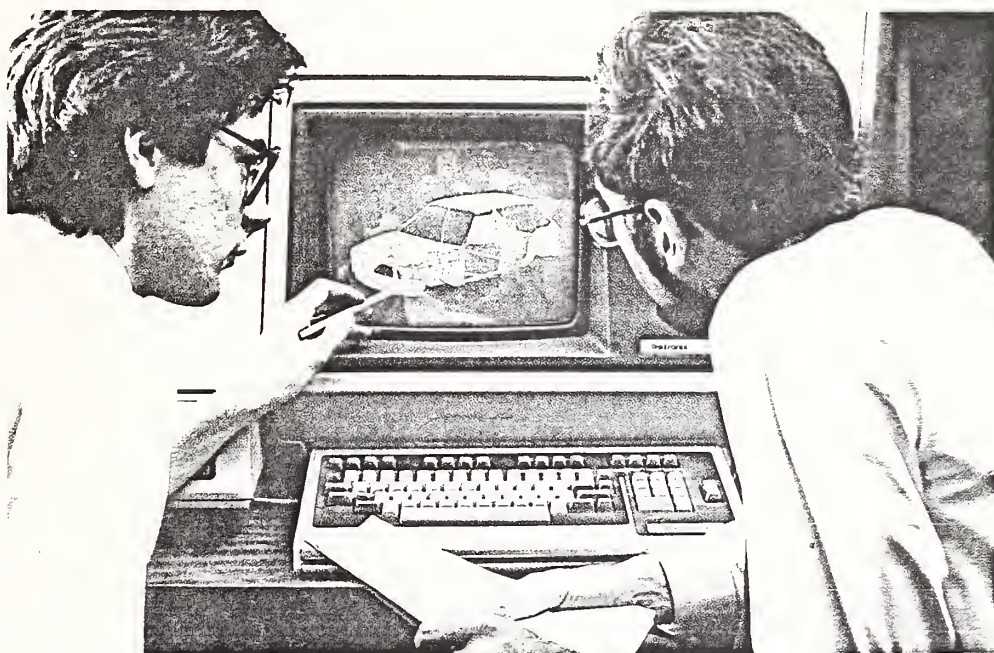
DPCE currently maintains hardware from over 150 manufacturers, ranging from terminal and peripheral equipment to the most powerful mainframes. Among them are:

computers	Data Printer Corp	Hazeltine	Micro Consultants	Shugart
Electronic Design	Data Translation	Hewlett-Packard	Midlectron	Siemens
	Data-Type Terminals	Hitachi	Modular Technology	Sigma Data Systems
	Datagraphix	Honeywell	Monolithic Systems	Sintrom Ellinor
	Datalogic	Hytec Microsystems	Moore Paragon	Spectronics Inc
	Datapoint	IBM	Mostek	Sperry
Jacobson	Dataproducts	ICL	National Advanced Systems	Standard Registers
computer	Dataram	Intel	NCR	Storage Technology
	Decision Data	Intermec	Newbury Data Recording	Summagraphics
	Delta Data Systems	Intermem	North Star Horizon	Systems Industries
	Diablo	Intersil	Olivetti	Systems Reliability
	Digico	K & N Electronics	Paper Tiger	Systime
	Digi-Data	Kennedy International	Penny & Giles	T-Bar
	Digital Equipment Co	Keytech	Pericom Data Systems	T.N.W. Inc
	Digitran	Kodak	Pertec International	Tec
ata Systems	Documation	Kode	Plessey Microsystems	Tektronix
ms	Dynatech-Nolton	Lamson	Potter Instrument Co	Teletype
	EMC Corporation	Lear Siegler	Prime	Televideo Systems
re Business Machines	EM & M Inc	Lexidata	Printronic	Telex
Automation	Elbit Data Systems	Lion Systems Developments	Quest Cil	Texas Instruments
Communications Inc	Epson	Lockheed Inc	Qume	Transdata
Link	Fabritek	Logica	Racal-Milgo	Trend
Technology	Facit	Lundy-Farrington	Rair	Versatec
ta	Ferranti Computer Systems	Lynwood Scientific Development	Recognition Equipment	Videcom
	Fima	Mannesmann Tally	Redifon Computers	Volker Craig
	Fujitsu	Master Systems	Rixon	Walters Microsystems
	Gandalf Digital Computer	MDB Systems	S & B Electronic Systems	Westward Micro Systems
	General Automation	Mellor Data	STC	Zentek
nics	General Electric Co USA	Memorex	Sension	
ral	Harris Intertype	Micom-Borer	Set	

Note: The absence of a particular make of equipment from this list does not necessarily mean that it is not covered by DPCE's present maintenance schedules.

To illustrate the breadth of DPCE's independent maintenance activities, the pages that follow take a look at some of the major private and public sector organisations that make up the 'DPCE User Group'.

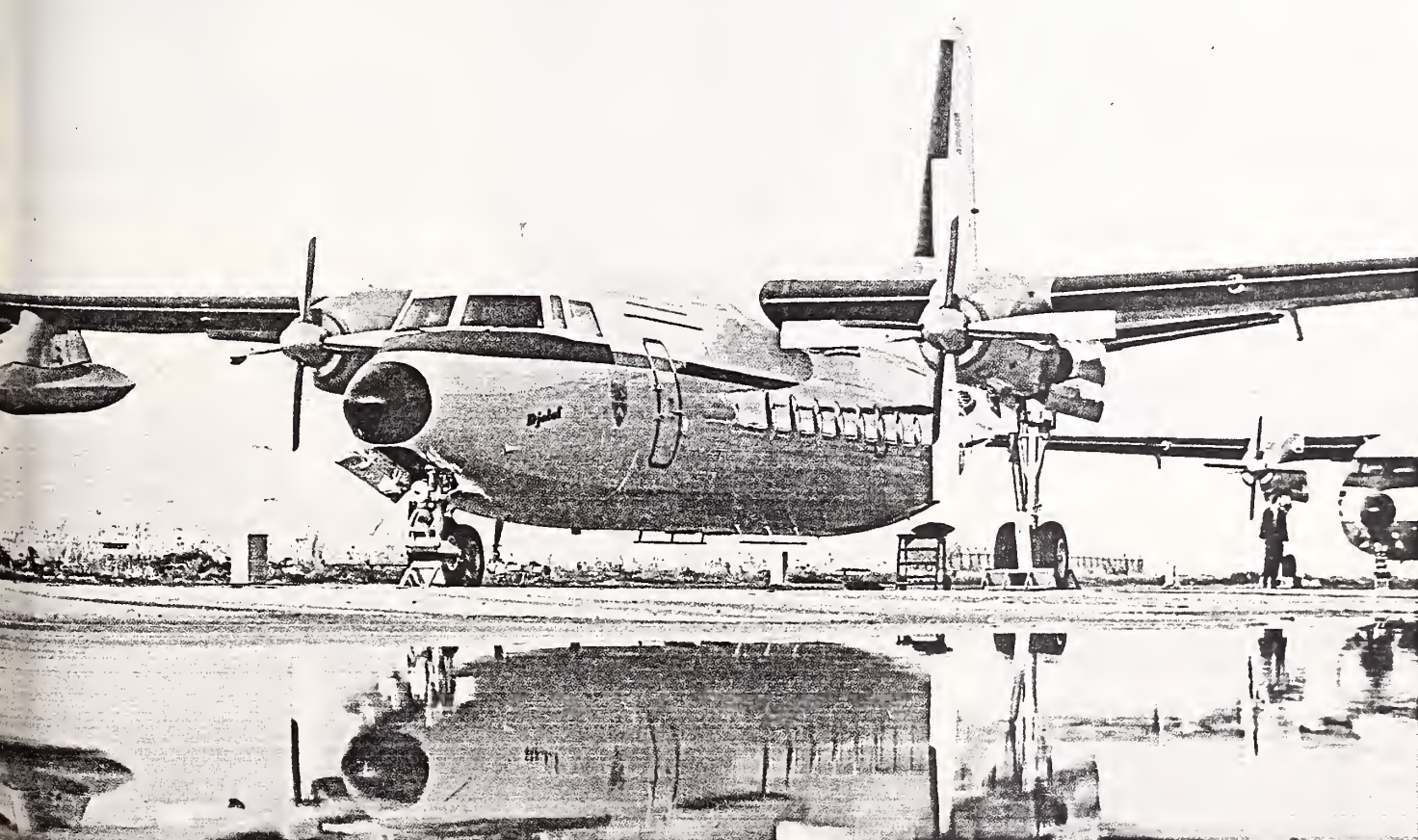
Industry



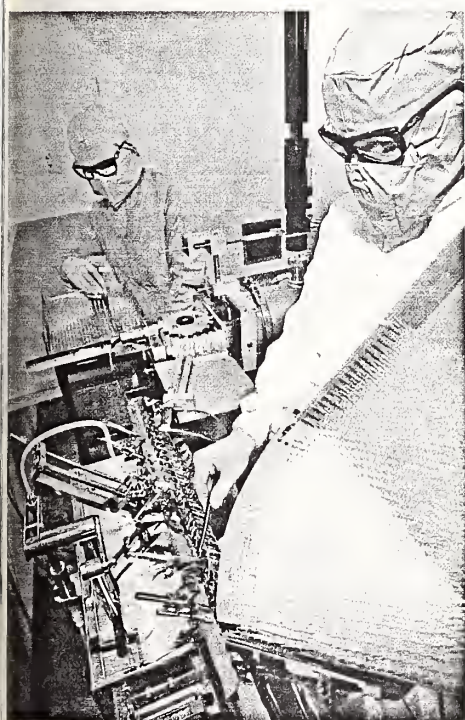
DPCE is responsible for the maintenance of large, mixed computer installations in several industrial sectors. Some are primarily administrative data processing systems, while others are on-line computers playing a key role in manufacturing processes. The **Austin Rover Group**, for example, DPCE is responsible for the maintenance of a large DEC-based system controlling production lines at the company's Cowley plant. The **Dowty Group** appointed DPCE

to maintain a twin ICL 2900 installation which handles material requirement planning, stock control, master scheduling and payroll functions for the group's aerospace and defence divisions. At another defence industry engineering company, **Hunting Engineering**, DPCE maintains an ICL 2960-based mixed system used for commercial transaction processing and batch work. The large terminal network of the **National Data Processing Service**

(part of British Telecom) is maintained by DPCE; as is the UK newspaper industry's largest Harris minicomputer system, at the Glasgow premises of **George Outram**, publishers of the *Glasgow Herald* and *Evening Times*. For **Racal Decca Management Services**, DPCE maintains an IBM 3031 installation at the company's New Malden premises, used for the processing of financial and production control data.



Science & Research



The fields of scientific and operational research have been fundamentally changed over the past few decades by the general use of computers, and much of the research conducted today would be impossible without the technological advances in computer science, as laboratory work and computing power become increasingly linked.

DPCE numbers many leading scientific and research institutions among its customers.

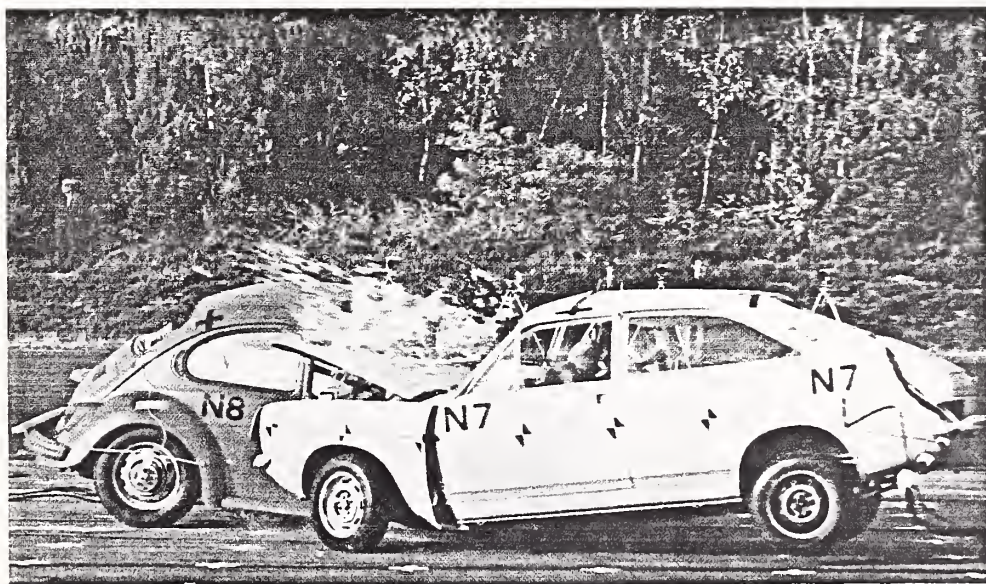
At the **Agricultural and Food Research Council** in Harpenden, DPCE engineers are responsible for the maintenance of two installations which include ICL and Honeywell equipment, and terminal hardware. DPCE also provides distributed network supervision.

Both the pharmaceuticals firm **Leo Laboratories** and the **Electricity Council Research Centre** entrust

their Prime systems to DPCE expertise, while **Culham Laboratories** in Abingdon have three Prime installations under DPCE maintenance that are closely involved with the nuclear fusion research programme at the Joint European Torus (JET). An open Government tender led to the maintenance contract for computers at the **Transport and Road Research Laboratory** in Crowthorne, where DPCE maintains equipment from over 10

manufacturers, including DEC, Tektronix, Prime and Hewlett-Packard.

DPCE also has full responsibility for CAMAC PDP-11 and LSI-11-based networking hardware and peripherals for the **Natural Environment Research Council**, located at 15 sites throughout the UK. What is thought to be Europe's largest DEC10 installation, used by British Airways for operational research, is also maintained by DPCE.



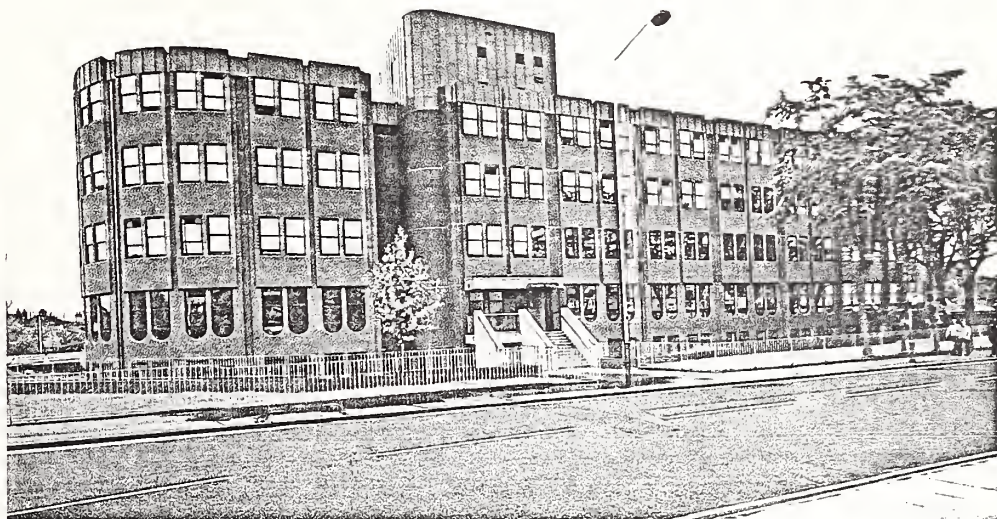
Photographs courtesy of: Transport and Road Research Laboratory; Leo Laboratories; Agricultural and Food Research Council.

Finance



In the world of banking, insurance and investment management, where time really is money, computers play a key role in the efficient and profitable day-to-day running of the business.

At the **National Girobank**, DPCE on-site engineering teams maintain a large data processing installation including several hundred keying



and OCR terminals, proof encoders, punch card and COM equipment and reader/sorters at the bank's Bootle Operational Centre.

The **Save & Prosper Group**, the UK's largest unit trust company, and a major force in life assurance, pensions and annuities, has been a DPCE user since 1981. At the group's Romford headquarters, DPCE is

responsible for a large EM 4341 installation which supports a teleprocessing set-up linking 20 offices around the UK.

Another IBM site under DPCE's maintenance care is that of **Sentry Insurance**, at Milton Keynes, where DPCE engineers look after a 3031 installation, plus a number of Memorex VDUs.

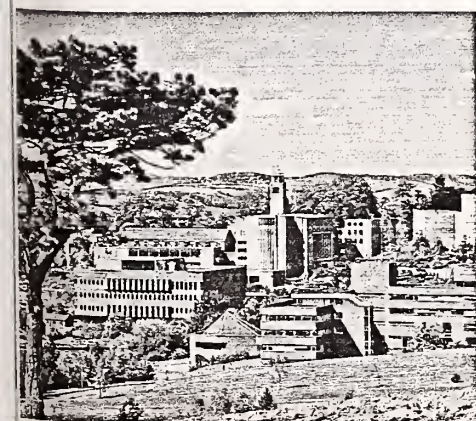
Education

The mixture of hardware in campus computer systems makes them prime candidates for independent maintenance, and DPCE has been involved in this field in the UK since 1979, when the company was appointed by **The University of Exeter** to take on maintenance responsibility for an ICL System 4

site with 150 terminals. Since then, the installation has grown to include hardware from DEC and Prime, as well as data communications systems linking the

establishment into the South Western Universities Computer Network.

At **Portsmouth Polytechnic**, DPCE maintains a mixed installation of ICL and DEC hardware.

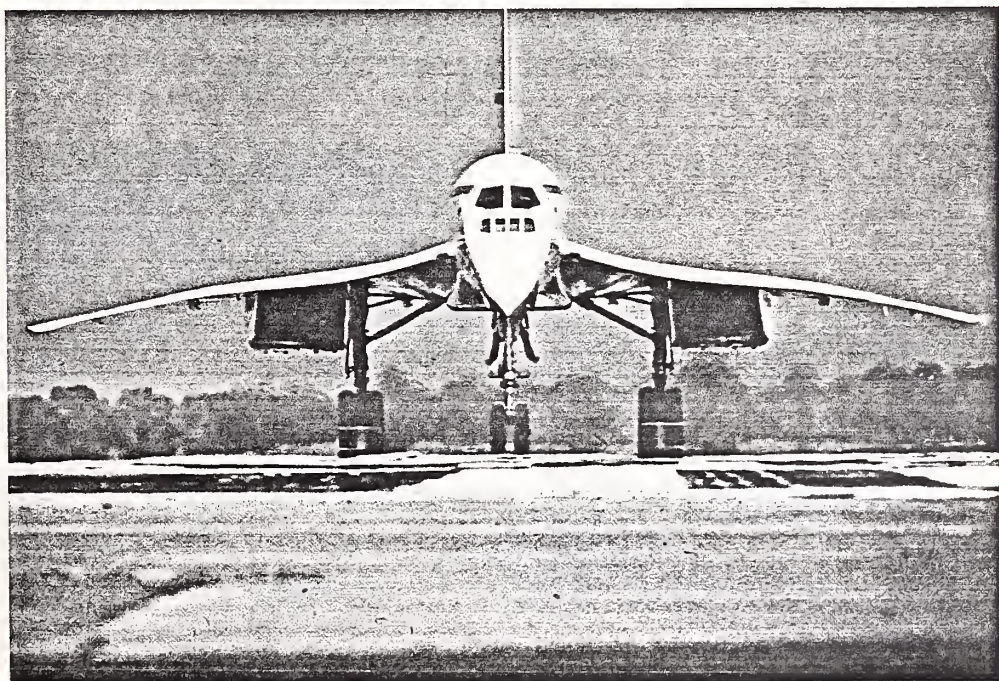


Aviation



services, rely on these computer installations, which incorporate IBM, Amdahl, DEC and NAS mainframes, as well as an enormous number of disk drives and other peripherals. In 1981 **KLM Royal Dutch Airlines** became the second major airline to endorse the concept of independent maintenance, when it appointed DPCE to maintain a large IBM installation at Amstelveen, near

Amsterdam. As in the case of the British Airways computer system, this provides on-line data processing facilities for a communications network that encompasses the globe. Under the terms of a separate contract from KLM, DPCE also maintains DEC computer systems controlling the highly automated Cargo Centre at Amsterdam's Schiphol Airport.



Photographs courtesy of: British Airways, KLM Royal Dutch Airlines.

There is no doubt that it was the aviation business that established DPCE's unique style of independent computer maintenance in the UK, when the company was appointed in 1976 to undertake the maintenance of two large **British Airways** computer centres at Heathrow and the West London Air Terminal. The airline's worldwide on-line reservation system, as well as a range of other on-line and batch

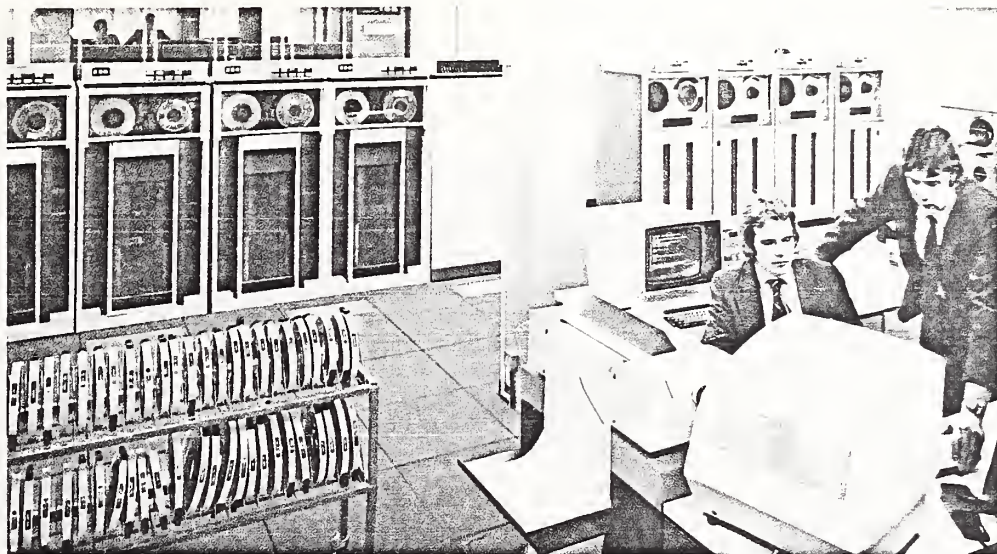
Computer/service companies

Computer systems houses and bureaux depend to a crucial extent on the reliability of their computer systems, since their own service to customers is based on the computer system.

It is therefore significant that a number of them use DPCE's maintenance services.

Free **Computing**, the computer services company in the John Laing construction group, chose DPCE to maintain two large, mixed installations involving IBM, Prime and other hardware.

Computer Services Centre Ltd, DPCE maintains an ICL 2903 installation, while for **Automatic Data Processing** the company is responsible for the maintenance of ICL and IBM hardware, and link equipment for the



company's London and Manchester centres.

In the CAD/CAM area, DPCE maintains turnkey workstations developed and marketed by

Cambridge Interactive Systems (CIS), and based on Tektronix Cifer and Prime hardware. At the **CAD Centre**, Cambridge, DPCE maintains a mainly Prime-based installation.

Retail

In the retail sector, DPCE is engaged in the maintenance of large, mixed computer installations, as well as distributed terminal networks.

Woolworth's Limited, the department store group, DPCE maintains a network of over 400 on-line point-of-sale terminals around the UK, playing a key role in the smooth running of its operations.

At the other end of the scale, DPCE undertakes the maintenance of three computer installations for **Sainsbury**, the giant food retailer. This contract covers mixed installations involving ICL 2900, and IBM 4341 mainframes, as well as a wide range of peripherals.



Local authorities

Local authorities that have found benefits of DPCE independent computer maintenance are **Coventry City Council** and **Brighton Borough Council**.

In both cases the installations are based on ICL System 4 computers, used for the councils' administrative functions.



Netherlands

DPCE has been steadily expanding in the Dutch computer market since 1978, when **KLM Royal Dutch Airlines** appointed the company to

maintain the large IBM installation that supports its worldwide on-line communications network.

A second contract from KLM followed in 1983, covering the computer systems controlling a new automated cargo centre at Schiphol Airport.

Another major IBM user in the Netherlands, **Computer Uitwijk**

Centrum (CUC) chose DPCE to maintain an IBM 3033 installation used as the basis of an emergency and back-up computing facility shared by several large organisations.

In the commercial sector, DPCE undertakes the maintenance of Hewlett-Packard 3000 installations for **VNU**, a major publishing house.



Photographs courtesy of Coventry City Council, KLM Royal Dutch Airlines.



MINISTRY OF THE INTERIOR



MAINSTAY COMPUTER COVER

**MAINSTAY PROVIDE A
MAINTENANCE SERVICE FOR IBM USERS,
GIVING IMPROVED FACILITIES
AT A REDUCED COST.**

High Standards
Lower Costs
Choice of Engineers
Additional Services

IBM computer users terminate their Maintenance Agreement and sign with Mainstay.

They can then use Mainstay's Engineering Service to look after their equipment.

Alternatively, customers can continue to call out IBM engineers to repair their computer equipment.

IBM will charge for each call. Mainstay pay their charge.

But there is more to Mainstay than this . . .



WHAT DOES MAINSTAY COVER?

Consider the benefits you will have, which are inclusive in the standard MAINSTAY charge:—

PREDICTIVE MAINTENANCE

A big feature of MAINSTAY'S services. Either planned on-site visits or examinations of diagnostic listings you send us. We have forestalled many problems with this service.

ENGINEERING CHANGE UPDATES

MAINSTAY takes on this responsibility, and ensures that your equipment is always at the right "EC Level". Your equipment is thus fully "up to date" at all times.

PROBLEM DISCUSSIONS

Should you want to discuss an engineering/maintenance problem, our engineers will welcome the opportunity to talk on the phone, or at your premises. This can often be a useful "second opinion". Particularly useful when you are using non-IBM peripherals. We have a vested interest in "getting you going", when problems arise.

WHICH ENGINEERS?

Many of MAINSTAY'S customers prefer to use our very experienced ex-IBM engineers. However, you can still call IBM out to fix any fault — on a time and materials (T&M) basis. MAINSTAY will meet this cost in full. Two teams of engineers available to you for less than the price of one!

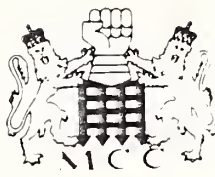
OTHER FEATURES

Other important matters include:—

- Coverage of Twinax cabling (not covered by IBM)
- Systems software advice (problems can sometimes be in this area)
- Fixed price for 12 months from signing (firm budgetting possible)
- Understanding of IBM's organisation and procedure (speeds up EC, parts and microcode ordering)
- Minimum of "red tape" (no claims forms to be filled in — just let us have IBM's invoice)

COST

Last, but definitely not least, A LOWER COST THAN IBM!



STEP BY STEP TO A MAINSTAY AGREEMENT

- STEP 1. The first step towards a MAINSTAY agreement involves the production by MAINSTAY of a firm quotation based on the hardware you have installed.
- STEP 2. Your acceptance of this quotation is the signing of the MAINSTAY agreement.
- STEP 3. You will then terminate your maintenance contract with IBM (giving them 30 days notice). IBM can optionally be requested to forward all future time and materials (T&M) bills to the customer at MAINSTAY'S office address.
- STEP 4. MAINSTAY'S engineers then carry out an initial inspection. They will check the EC level, and examine the error diagnostics. Based upon this, MAINSTAY produce a report which will identify any work that should be completed by IBM before the IBM agreement ends.
- STEP 5. MAINSTAY will then arrange cover and the agreement is completely in force and you are totally protected.



WHO ARE MAINSTAY?

Some background information . . .

FINANCIAL

Following inauguration in 1981, Mainstay's growth, market awareness, profitability and potential was recognised by Citicorp Development Capital who are the venture capital arm of Citicorp – one of the world's largest banks.

Citicorp now have a sizeable minority interest in Mainstay and a seat on the board.

MANAGEMENT

Mainstay people are largely ex-IBM, with years of experience in Customer Engineering, Sales and Systems Engineering. There are also Mainstay people with substantial management experience in IBM user sites.

In addition to executive directors, Mainstay's non-executive directors include a Merchant Banker, a Financial Consultant, an Accountant, an Insurance Broker and two Company Chairmen.

INSURANCE

To continue a keen pricing policy, Mainstay in 1984 renegotiated its insurance backing with a new insurance company. This ensures financial balance by offsetting an appreciable portion of any risk involved. The insurance company is Associated Insurance Management (AIM). Although relatively new in the UK, AIM are totally financially backed by three of the larger continental insurance companies, with total group premium income exceeding £1.4 billion. The Mainstay contract is Mainstay's copyright and was specifically negotiated in the insurance market to cover many features normally excluded from traditional breakdown-only policies.



ADDITIONAL SERVICES

Mainstay will be pleased to advise on any of the following for IBM users:—

- Site planning and preparation
- Transportation of D P equipment
- Deinstallation and reinstallation
- Equipment moving
- System upgrades and downgrades
- Additional equipment
- Twinax cabling and plugs

IN SUMMARY . . .

- * Lower costs
- * Comprehensive services
- * Large customer base
- * Sound backing

MAINSTAY

. . . the first name in third party maintenance
for IBM equipment.



MAINSTAY PROPOSAL FORM

THE CUSTOMER				POLICY NUMBER
THE POLICY HOLDER DIFFERENT FROM THE CUSTOMER				VAT REGISTERED No. VAT STATUS (If partially exempt add recovery)
ADDRESS OF INSTALLATION				
ADDRESS FOR CORRESPONDENCE IF DIFFERENT FROM ABOVE				
INITIAL TERM	FROM TO (Commencement Date)			
PAYMENT PERIOD	QUARTERLY	HALF YEARLY	ANNUALLY	
AGREED AMENDMENTS				
MAINSTAY CHARGES				£
permission for waiving of an exclusion other than by Endorsement as listed in Agreed Amendments is granted.				
AND ON BEHALF OF THE CUSTOMER				
AND ON BEHALF OF MAINSTAY				
TOTAL COST				

I declare that the statements made in this proposal form are true and correct to the best of my knowledge and belief and that I have not withheld any material information. I agree that the above proposal and this warranty and declaration shall be the basis of any future contract between me and Mainstay, and I agree to abide by the terms and conditions of any policy issued in answer to this proposal.

I declare that this proposal and declaration shall form the basis of the contract between me and Mainstay.



MAINSTAY PROPOSAL FORM
MACHINE LIST

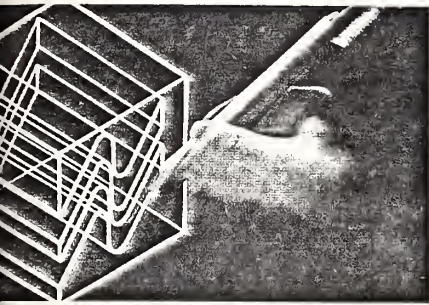
EQUIPMENT SERIAL NUMBER	DESCRIPTION (MODEL/FEATURE; QUANTITY)			HOURS OF COVER
	MOD/FEATURE	QTY.	DESCRIPTION	

..... AUTHORISED SIGNATURE

COMPUTER ENGINEERING SUPPORT SERVICES



National Advanced Systems The Company



National Advanced Systems is a wholly-owned subsidiary of National Semiconductor, one of the world's leading manufacturers of integrated circuits.

National Semiconductor Corporation is a multi-national company which employs over 30,000 people worldwide, and spends many millions of

dollars each year advancing solid state technology through research and development.

Field Engineering Services

NAS provides full Field Engineering Services for all types of computer systems, from mainframes to micros with over 200 fully-qualified engineers in 11 different European countries.

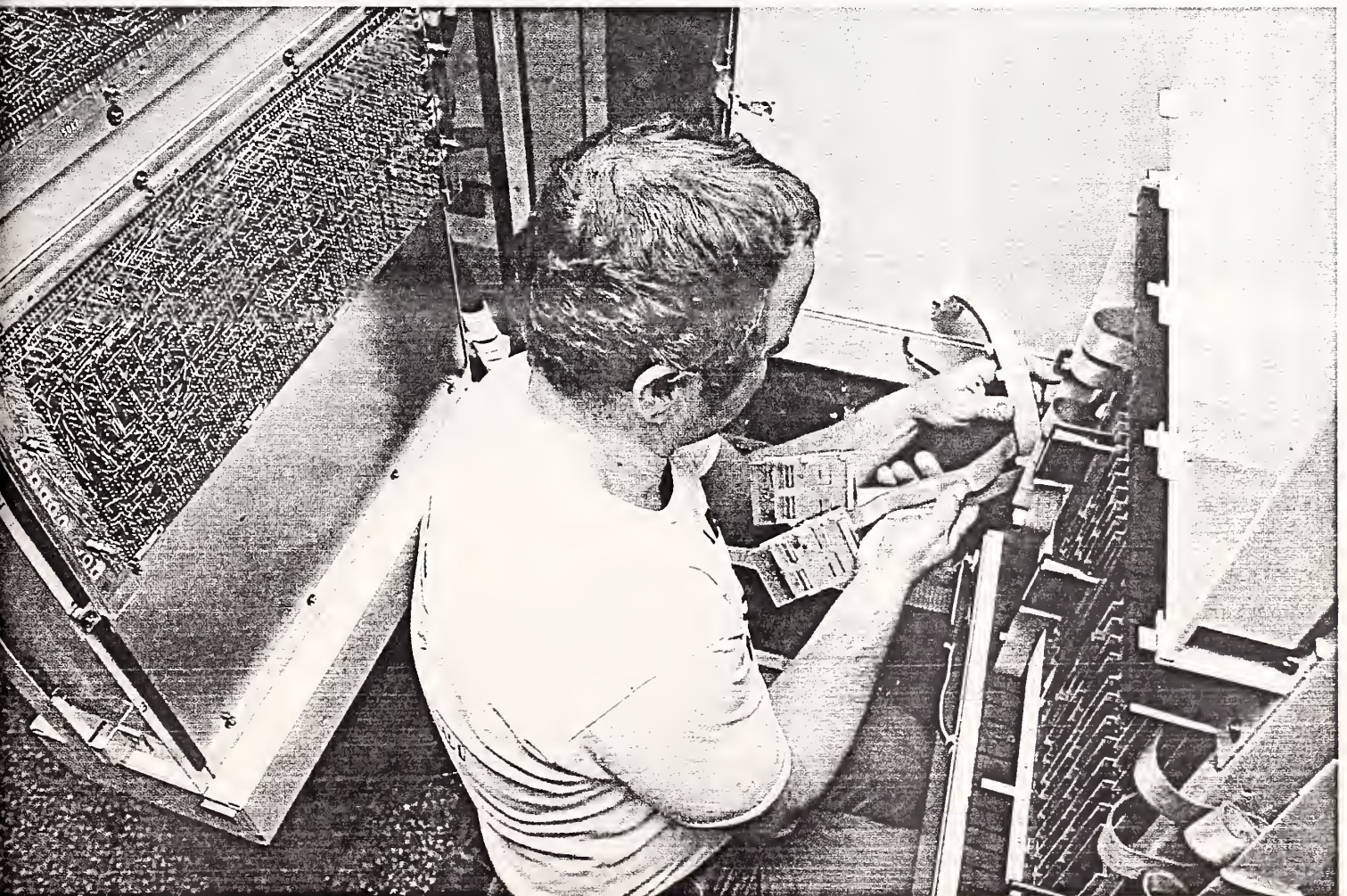
Field Engineers (FEs) are fully backed-up by Technical Support Groups in each country, and by a European Technical Support Department.

Extensive use of paging systems and service calls directed through local distribution centres enables NAS to respond immediately to a service request.

Emphasis is placed on modular replacement which reduces machine down time to a minimum.

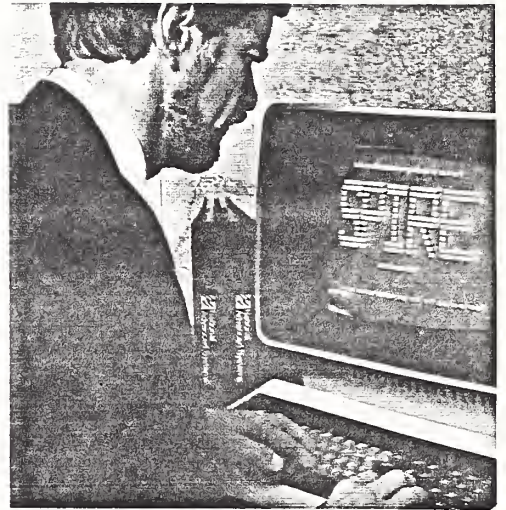
All spare part distribution and stock control is computerised for efficient allocation and reordering.

The Field Engineering Departments have efficient logistics services to ensure maximum utilisation and availability of spare parts. Spares kits are held in all service areas and are backed-up by Country and European warehouse stocks.

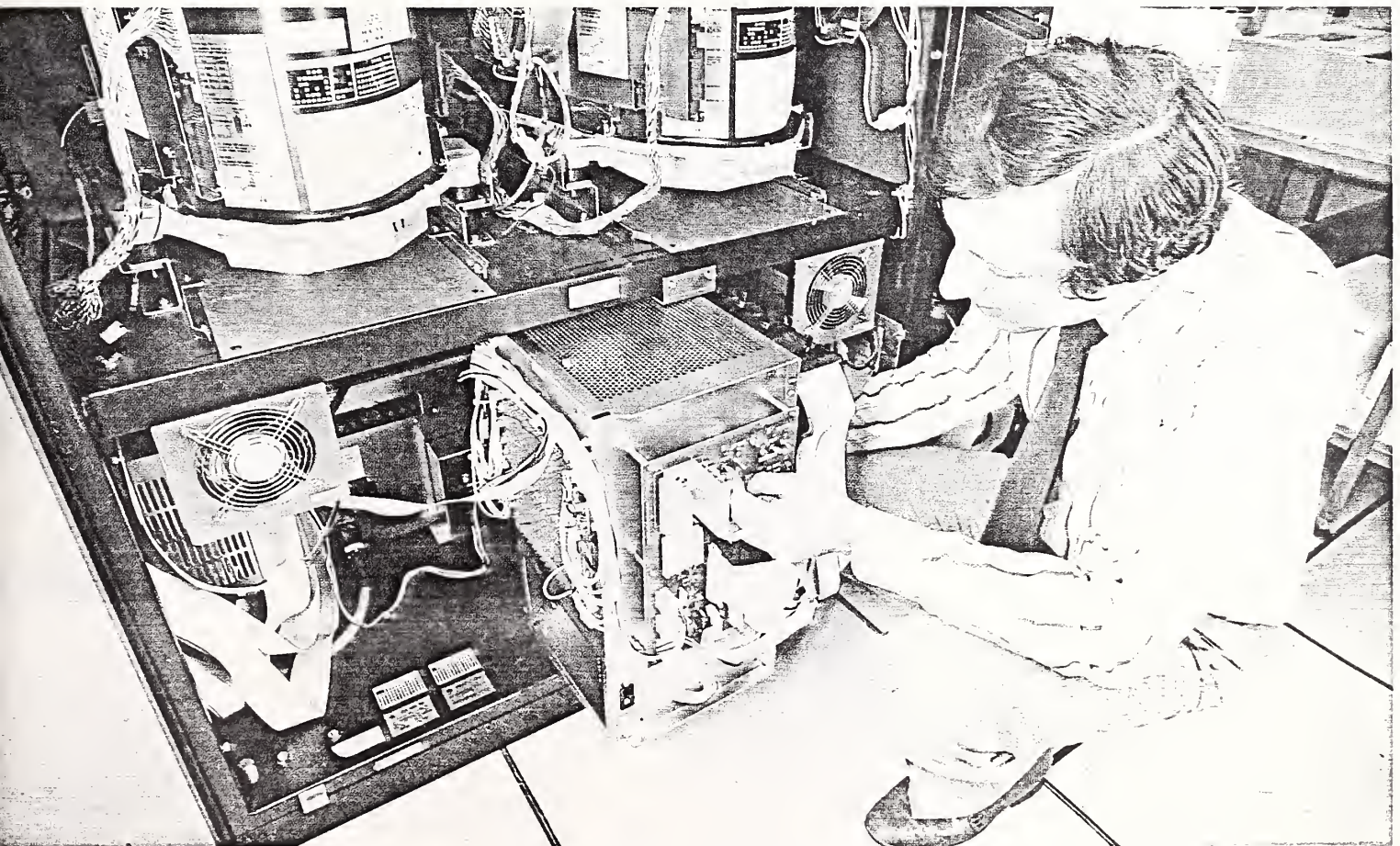


SPIRE

All NAS Field Engineering staff have access to the SPIRE system. SPIRE is a sophisticated on-line database of information on technical problems that have occurred with a particular system or its software. The SPIRE system was developed to allow NAS support staff to identify and deal with problems quickly and efficiently.



European Repair Centre



In addition to providing a full workshop back-up service to Field Engineering, the European Repair System offers a comprehensive workshop facility for repair, overhaul, modification and evaluation of computer systems and related peripherals.

Using state-of-the-art test techniques, such as the use of programmable chip testers, logic analysers and signature analysis, repairs to component level on PCBs can be completed quickly.

Test beds for power supplies and disk drivers are also provided.

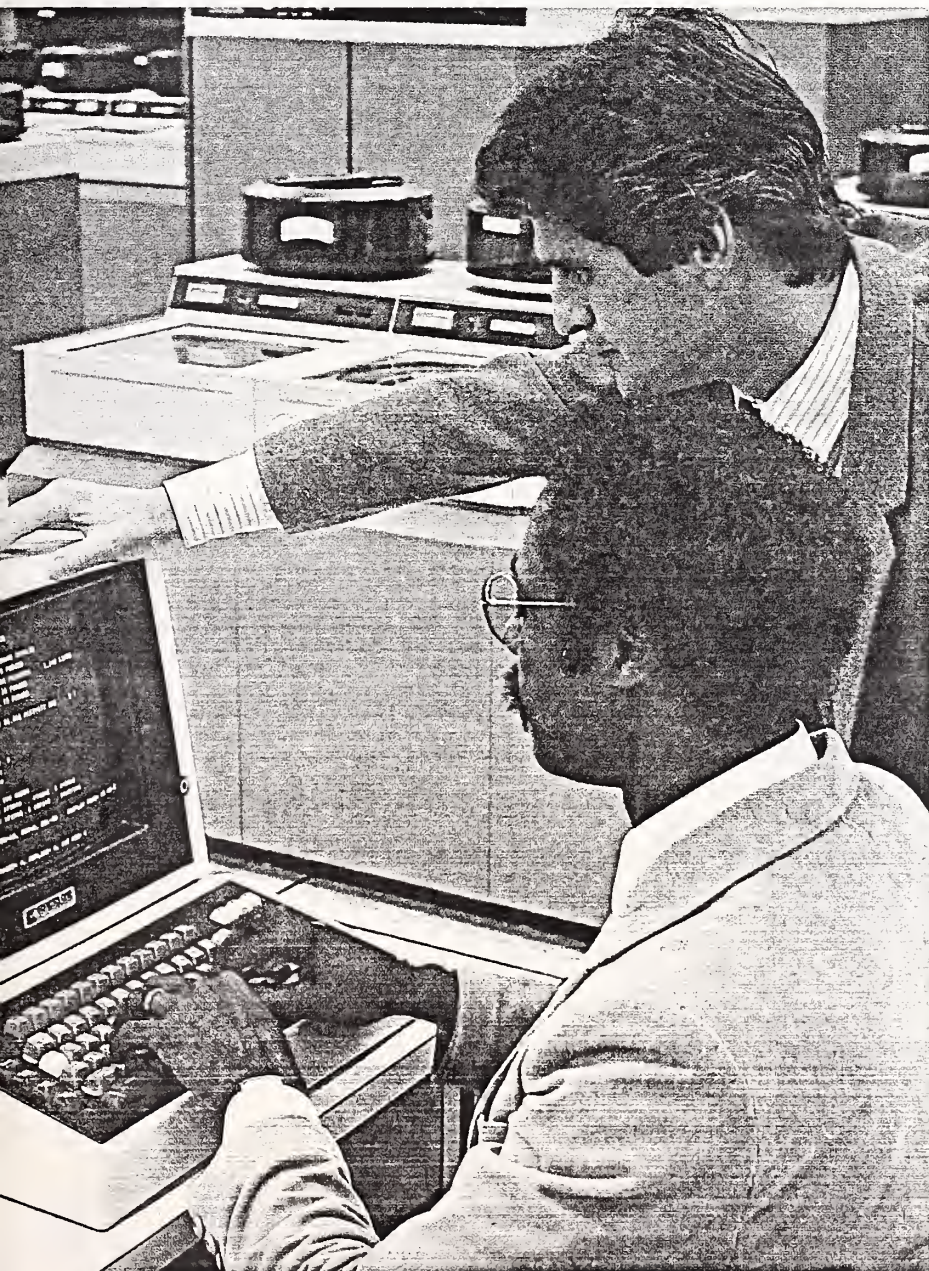
Quality control is a top priority. Real time in system emulator techniques is used to guarantee the highest level of reliability. Set repair procedures ensure that, after repair, burn-in machine and system tests take place before despatch to customers. All repaired boards carry a warranty that meets OEM performance specification.

Training



NAS insists on continuing training for its engineering staff, and a significant part of a Field Engineer's time is spent on new product training. Training facilities in London and Frankfurt provide courses in both software and hardware.

European Distribution Centre



Located near Amsterdam's Schiphol Airport, the NAS European Distribution Centre provides a distribution and logistics function for Europe.

The EDC can offer warehousing, stock control, administrative and management functions. A fully computerised system is available for the distribution of equipment and spares to dealers throughout Europe.

The EDC's extensive experience with Customs licencing also ensures a fast, efficient service.

Field Engineering Services The Benefits

- ★ NAS can provide a complete Field Engineering Service throughout Europe offering:
 - (1) Quick response, high-quality Field Engineering
 - (2) Excellent back-up and workshop facilities
 - (3) Spares distribution and stock control
 - (4) Administration services and operations control
- ★ NAS Field Engineering is **FLEXIBLE**: the levels of support can be tailored to suit your needs.

- ★ NAS can eliminate much of the worry that could occur when using smaller, less well-established maintenance organisations.
- ★ The European Repair Centre provides a complete board repair service. It is a fact that 90% of faulty boards which are discarded could be repaired more cheaply than the cost of a replacement.



European Distribution Centre can
provide all the Warehouse and
distribution services necessary to
market a system successfully in
Europe.
National Advanced Systems provides
complete Field Engineering Service
Europe.

UNITED STATES

Corporate Headquarters

National Advanced Systems Corporation
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EUROPE

Corporate Headquarters

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Cep 01452
Sao Paulo SP
Brasil.

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ITALY

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NETHERLANDS

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SWEDEN

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SWITZERLAND

National Advanced Systems AG
Talacker 42, 8001 Zurich.

UNITED KINGDOM

National Semiconductor (UK) Ltd.
National Advanced Systems Division
John Busch House, 277 London Road,
Isleworth TW7 5AX.



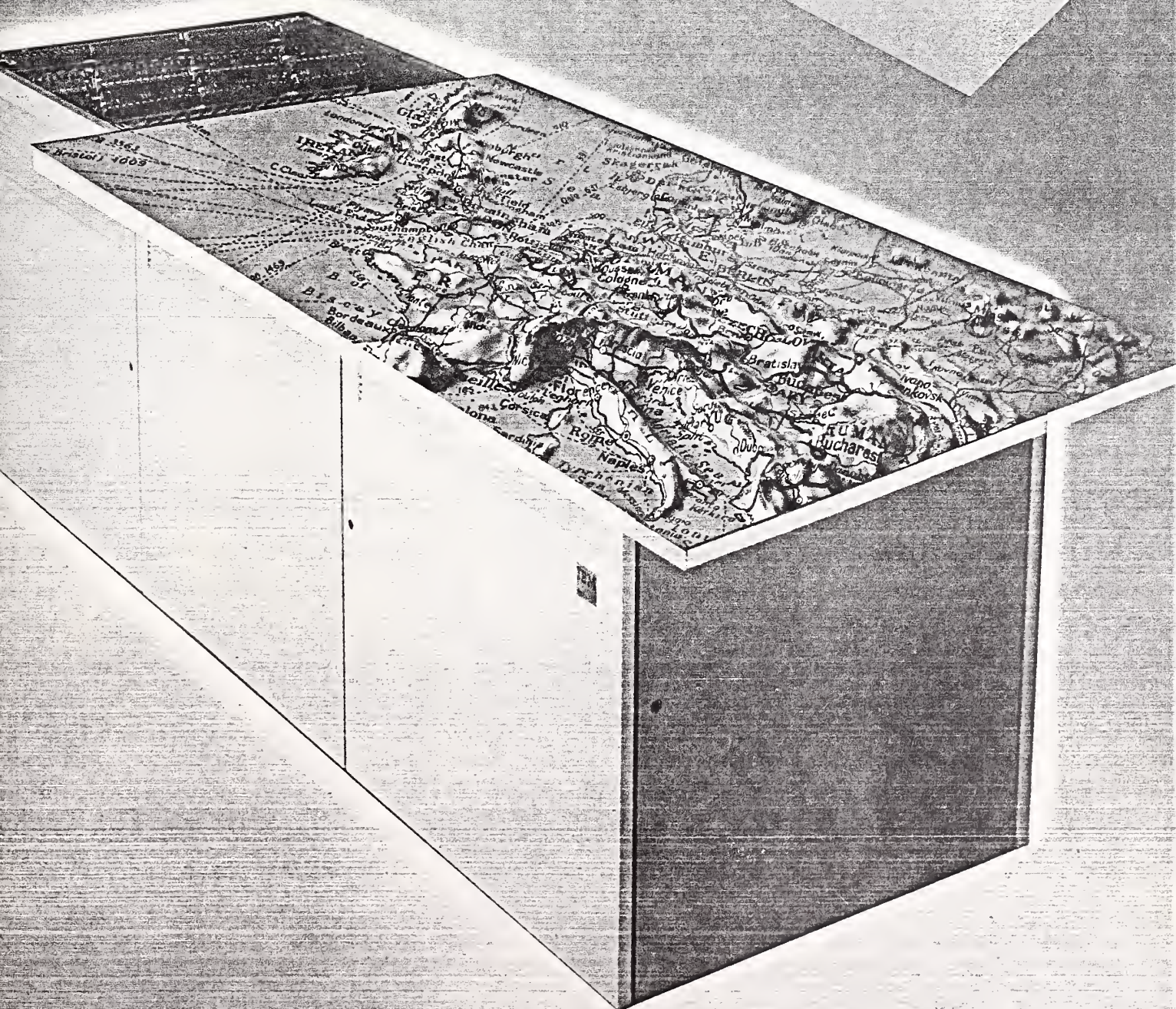
**National
Advanced Systems**



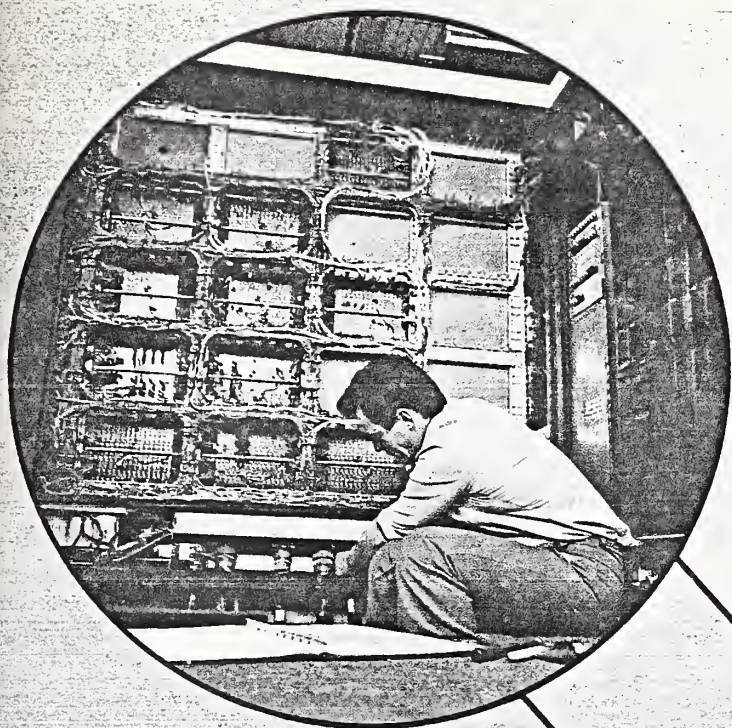
SMS International

LONDON · FRANKFURT · PARIS · GENEVA

COMPUTER HARDWARE ENGINEERING SERVICE IN EUROPE



SMS INTERNATIONAL IS A GROUP OF NATIONAL COMPUTER HARDWARE ENGINEERING COMPANIES, INDEPENDENT OF ANY MANUFACTURER OR SUPPLIER.

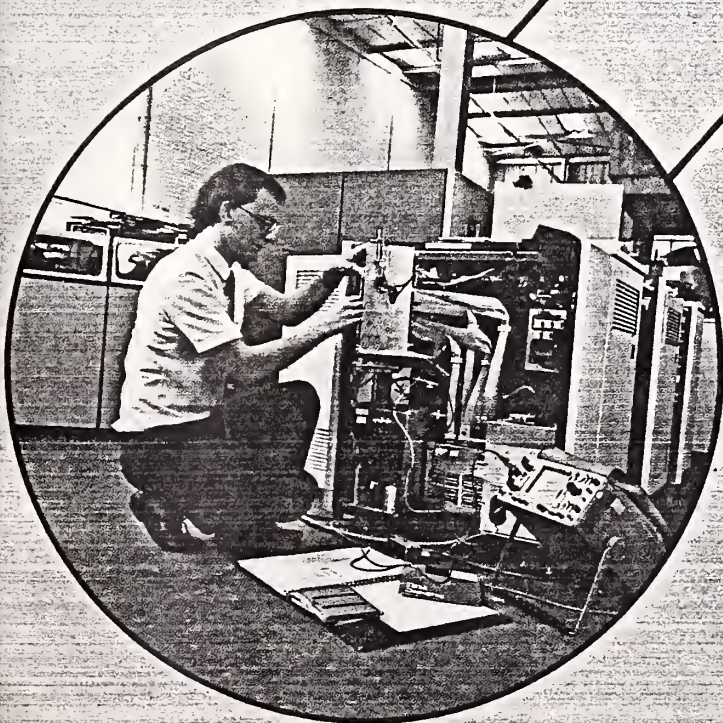


SMS maintain a large and diverse number of current computer systems throughout Europe, ensuring full use of all our resources. The resultant cost savings allow SMS to quote competitive charges against manufacturers service departments.

FIELD MAINTENANCE offers single source and response tailored to customers require-

ments. Services include full mainframe, mini and system maintenance with particular experience on IBM and plug compatible equip-

ment. Workshops have comprehensive test equipment and spares kits to supply prompt repair services.



SMS TECHNICAL SERVICES are the leading independent IBM mainframe installation and deinstallation specialists in Europe, Africa and the Middle East.

SMS IBM-trained professionals are dedicated to providing a local and multinational service, and understand the need for flexibility and commitment to meet installation deadlines.



SMS INTERNATIONAL OFFICES AND WORKSHOPS IN LONDON, FRANKFURT AND PARIS HAVE BEEN PROVIDING EUROPEAN – WIDE HARDWARE ENGINEERING ON ALL TYPES OF SYSTEMS SINCE 1973.

In a rapidly expanding and changing industry, our European structure allows us to pool our resources and skills to adapt to new technology, preserving continuity of professional experience and stability not available from manufacturers service departments.

SMS professional field engineering is augmented by teams of national and international technical specialists to ensure total support.

national administration and support is directed from control centres in London, Frankfurt and Paris.

own computer systems monitor field engineering progress with instant access to fault fixes, technical support and spares availability throughout Europe, thus offering total account management.

SMSTRAINING CENTRES in the United Kingdom, West Germany and France, together with our affiliate institutes in the United States, sustain the quality of our professional engineering.

SMS field engineers are trained to think as professionals beyond a manufacturers narrow perspective, and to be friendly and responsive with their customers.



General Systems Division — Flexible and Versatile

S operates a nationwide **General Systems Division** to supplement its **IBM Data Processing Division**.

The General Systems Division is geared to providing on-site and workshop repair services for a full range of computer and peripheral equipment.

Equipment covered ranges from Micro-computers, manufactured by **IBM, Panasonic and Memory Computers** etc. to peripherals from **Dataproducts, TEC, Hugart, Hazeltine, Lynwood, OKI, Diablo**, etc. Service on **DEC, Hewlett Packard and Wang** can be provided based on major cities in the United Kingdom.

In servicing this wide range of equipment, SMS has a policy of only servicing those products where adequate resources of training, documentation and parts are available. This is achieved through formal agreements with manufacturers, e.g. Dataproducts,

agreements with main distributors, e.g. Memory Computers, and service of equipment from manufacturers providing a modicum of co-operation to independent computer engineering companies, e.g. IBM and DEC.

SMS General Systems Division Offers:-

- Delivery, installation and warranty services for manufacturers and suppliers.
- Fixed price annual maintenance agreements.
- Cost effective service related to the Customers requirements and resources.
- Flexible and unbiased service.
- Central computerised Call Despatch and Logistics control, providing efficient administration and high quality of service.

A MEMBER OF THE SMS INTERNATIONAL GROUP OF COMPANIES



IBM Maintenance—You really do have a choice

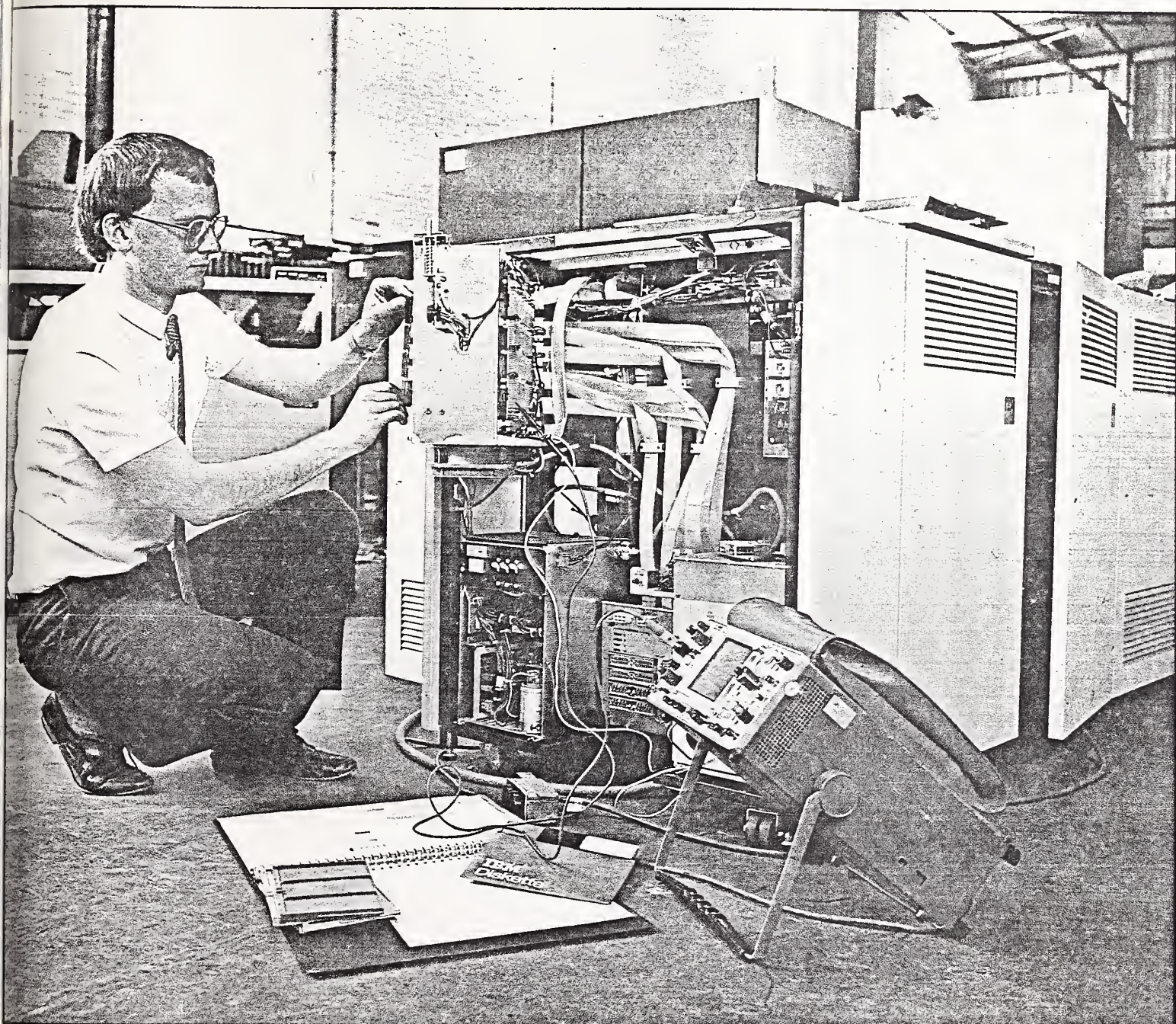
Established in 1973, SMS International is Europe's leading **Independent Maintenance Organisation** for **IBM** and **IBM Plug Compatible** equipment (in excess of 100 major systems currently under maintenance).

As part of this group SMS Ltd. maintains hardware from **Current Mainframes to P.C.'s**, including 3033 and 3081, as well as plug compatible equipment from other leading manufacturers.

SMS provides a quality of **Full Field Service** equivalent to that of IBM or the appropriate manufacturer/supplier together with the operating standards an Independent Company has to offer:

friendly, responsive service tailored to your requirements.

- **Engineering Change (EC)** fitment as appropriate.
- Maintenance to at least **MAQ** standard at no additional cost.
- **One Maintenance Company** responsible for all equipment.
- **Free of charge** consultancy services in respect of equipment upgrades, movements and additions.
- Agreed **Escalation procedures** for prolonged or intermittent fault situations.
- **Resident engineers** for large installations.
- Very significant **Cost Savings** compared with original manufacturers.



Technical Services Division—IBM and more

provides full install, deinstall and feature change services for the major European IBM Brokers as well as directly for end users.

Our services are available throughout the world with having been successfully completed in places as far afield as **Canada, China, Singapore, South Africa, Philippines, Saudi Arabia and India**, as well as **European Countries**.

Using a team of highly skilled and trained personnel, based at its Heathrow premises, SMS services include:

• All equipment refurbishment to 'As New' standards.
• Equipment audits.

- Staging of complete systems (including water chilled CPU's) as well as individual peripherals.
- Fitting and removal of all features.
- Complete cleaning and shrink wrapping of all equipment prior to leaving our warehouse.
- Transport arrangements.
- Installs and deinstalls at user sites.
- Consultancy and installation planning service.
- All work guaranteed to IBM MAQ standards.
- Cost savings.



SYSTEMS MAINTENANCE
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6230, FRANKFURT 80,
WEST GERMANY
TEL: 0611/396065 (5 Lines)
TELEX: 0413528



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TEL: (1) 732.33.74 - TELEX: 270871 F



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TEL: 01-751 4451 (10 Lines)
TELEX: 8814060



SUN

*Maintaining
Standards*

The Sun Computer Group was established in 1978 to provide technical support to the IBM and "plug compatible" leasing and brokerage market.

The Company's high standards and innovative approach brought immediate success, allowing them to diversify and to provide cover for most types of mainframe and micro computers as well as peripheral equipment.

In 1984, to cater to the ever-growing demand for third party maintenance, the Company set up their own dedicated service division aptly named Sun Computer Maintenance.

Early in 1985, the Sun Computer Group became part of IBL plc, International Brokerage and Leasing organisation providing access to the vast financial and market resources of this large group.



Debugging a mainframe

The Service

Although created as an independent maintenance alternative to the original computer equipment manufacturer, Sun Computer Maintenance also offer a full planning service to companies wishing to install computer systems.

Installation Planning

Our staff are available to advise on the initial choice of equipment, computer room layout and the electrical and air conditioning specification required for any new computer installation.

Account Management

Prior to the commencement of any maintenance agreement we:

Complete a physical audit to check that all the equipment is on site as described.

Complete a technical audit – to check all features listed are installed and functioning correctly.

Inform the customer and the equipment manufacturer of the results of the audits.

For IBM equipment, obtain MAQ letters for all equipment that Sun will be maintaining.

Generate an "Account Manual" covering all aspects of the contract, including names of customer and Sun contacts, preventive maintenance schedule, reporting procedures, software configuration and facility organisation, etc.

Agree a spares holding and test equipment holding area.

Introduce you to your Customer Engineer and Account Co-ordinator.

The primary interface between Sun and our customers is through our engineering staff using our Account Management System. They will monitor the overall performance of each device within the account. Through regular preventive maintenance machine downtime will be reduced. Statistical reporting and regular customer meetings to discuss individual needs will ensure that both we and our customers have the same machine performance criteria.

Fault Reporting Procedure

part from regular scheduled preventive maintenance, when you need an engineer contact us at our Call Despatch Centre on 01-486 1609. The call will be logged, the relevant information recorded and the details passed to your local Customer Engineer. He will then contact you to check the seriousness of the situation, if possible giving you immediate assistance on the telephone. If your call is during "prime shift" (ie. normal working hours) your Customer Engineer will be on site within 2 hours. Even outside normal working hours he will be on site within 4 hours.

Escalation

Should your engineer be unable to cure the fault after 4 hours working on site, our Escalation Procedure automatically comes into effect. The on-site engineer will be contacted by the technical specialist and advised as to the recommended course of action to enable the return of the working unit to your operations staff at the earliest possible moment. The Escalation Procedure can, however, be invoked sooner if your engineer deems it necessary.

Repares

Repares held at all locations consist of high usage and preventive maintenance items. At our main London stores we carry complete repares kits for all units which we are currently maintaining, and with 24 hour accessibility to IBM main stores at Greenford, we are able to offer our customers a service which is second to none.

Market Intelligence

The computer market is, by its very nature, one of frequent technical innovation. We are very aware of the speed with which changes occur and therefore ensure that our staff receive ongoing training and information updates about engineering changes, system specifications, new product lines, as well as mandatory statutory requirements for health and safety at work.

The Future

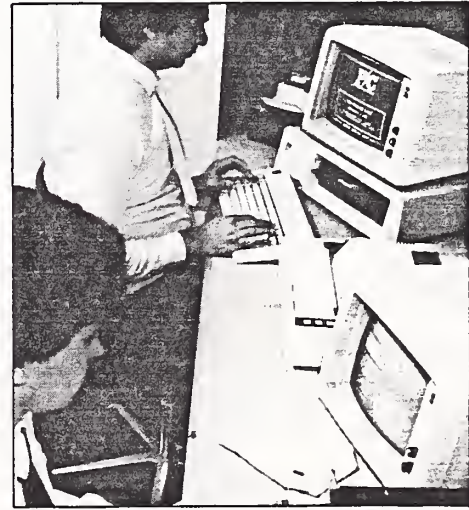
Our Computer Maintenance are at the forefront of today's technology. We have the resources, the expertise and the financial stability to cater for your requirements throughout the 1980s and 1990s.

Our clients include:

- | | |
|-------------------------|------------------------------|
| British Telecom | Standard Life |
| BS Semiconductors | Scottish & Newcastle Brewery |
| Polaroid | Institute of Cancer Research |
| Esso Chemicals | Scottish Widows |
| Unique Publicity | Babcock Power |
| Marketing International | |



On-site maintenance on a tape sub-system



Repairing IBM PCs



Sun Computer Maintenance UK Ltd
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Telephone: 01-890 1440. Telex: 8954428.

Service Centres — UK:

London, Birmingham, Manchester, Bristol, Glasgow, Edinburgh

Service Centres — Europe:

Belgium, Denmark, France, Germany, Greece, Italy
Netherlands, Norway, Portugal, Spain, Sweden, Switzerland

